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MUSKOKA LAKES PROJECT

1986 PROGRESS REPORT

- Lake Muskoka
- Lake Joseph
- Lake Rosseau
- Lake of Bays

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1988
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DR 88/1

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MUSKOKA LAKES PROJECT

1986 PROGRESS REPORT

- Lake Muskoka
- Lake Joseph
- Lake Rosseau
- Lake of Bays

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Data Report 88/1

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PREFACE

The Data Report Series is intended as a readily available source of basic data collected for lakes and watersheds in the Muskoka/ Haliburton area of Ontario. These data were collected as part of the Lakeshore Capacity Study and/or the Acid Precipitation in Ontario Study.

The limnological portion of the Lakeshore Capacity Study (1975-81) was initiated to investigate the relationships between lakeshore development and trophic status in low ionic strength Precambrian lakes. The Acid Precipitation in Ontario Study (1979 - present) was initiated, in part, to investigate the effects of the deposition of strong acids on aquatic and terrestrial ecosystems in Ontario. The primary findings of these studies have been and will continue to be published as reviewed papers and technical reports.

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ABSTRACT

This progress report summarizes the 1986 lake chemistry data for Lake Muskoka, Lake Joseph, Lake Rosseau and Lake of Bays. The nutrient levels show that the lakes are oligotrophic. The alkalinity data indicates the lakes are moderately sensitive to acidic deposition. A comparison of the volume weighted and tube composite sampling methodology indicates that these two methods are comparable.

Reid, R. A. and R. Girard, 1987. Muskoka Lakes Project: A Progress Report of the 1986 data. Ontario Ministry of the Environment Data Report. DR 88/1.

SOMMAIRE

Le présent rapport résume les données recueillies en 1986 sur les caractéristiques chimiques du lac Muskoka, du lac Joseph, du lac Rosseau et du Lake of Bays. D'après leur charge nutritive, ces lacs sont oligotrophes, et leur alcalinité révèle qu'ils sont plus ou moins sensibles aux dépôts acides. Par ailleurs, l'examen des méthodes d'échantillonnage (l'une à volume simple, l'autre à volume composé) indique que les deux méthodes sont comparables.

Reid, R.A. et Girard, R., *Muskoka Lakes Project: A Progress Report of the 1986 data*, rapport de données du ministère de l'Environnement de l'Ontario, DR 88/1, 1987.

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EXECUTIVE SUMMARY

This report summarizes the progress of the Muskoka Lakes project which began in 1986. As part of the Inland Lakes programme, the Muskoka Lakes project is monitoring the impact of acid deposition and localized nutrient loading on the water quality of Muskoka's four largest lakes:

- Lake Muskoka
- Lake Joseph
- Lake Rosseau
- Lake of Bays
    - each lake had several sampling locations - Lake Muskoka (13), Lake Joseph (11), Lake Rosseau (12) and Lake of Bays (12) for a total of 48 sampling sites.
    - each site was sampled monthly except Gravenhurst Bay (GB) and Muskoka Bay (MB) on Lake Muskoka which were sampled bi-weekly.
    - this is a report on the first of three years of monitoring. A more complete report will be published after three years.

Findings:

Chemistry data

- low levels of nutrients and chlorophyll in the study lakes indicate little enrichment. The chemistry data indicates only small differences among sampling sites on each lake.

Table 1: Mean values and standard deviation for nutrients and chlorophyll ($\mu g\ L^{-1}$) during the ice-free season for the four study lakes in 1986.

Lake	TP Total Phosphorus	NH_4 Ammonium	NO_3 Nitrate	Total Kjeldahl Nitrogen	Chl-a
Lake Muskoka	5.30(1.92)	9.9(3.8)	213.1(24.9)	210.2(17.8)	1.52(0.26)
Lake Rosseau	4.48(1.02)	8.6(3.2)	190.1(21.3)	190.9(23.9)	1.40(0.32)
Lake Joseph	3.22(0.63)	9.1(3.9)	117.2(12.9)	170.0(29.0)	1.92(0.55)
Lake of Bays	3.83(0.71)	9.6(4.9)	131.9(27.6)	179.5(26.4)	1.67(0.35)

- each lake is rated moderately sensitive to acid deposition based on the alkalinity values of 63-93 $\mu eq\ L^{-1}$ as $CaCO_3$.

	Alkalinity (μeqL^{-1} as $CaCO_3$)		
	Mean	S.D.	
Lake Muskoka	92.7	(8.6)	(excludes GB and MB)
Lake Rosseau	87.9	(3.8)	
Lake Joseph	63.1	(3.6)	
Lake of Bays	70.9	(5.6)	

- hypolimnetic oxygen levels were <5 mg L^{-1} at 10 of the 48 stations during the late summer of 1986.
- localized nutrient enrichment occurs in Gravenhurst Bay and Muskoka Bay because of loadings into these bays from the Gravenhurst Sewage Treatment Plant.
-

	Total Phosphorus	Total Kjeldahl Nitrogen	Chl-a	Secchi Depth
	$\mu g\ L^{-1}$			m
Gravenhurst Bay	9.9	320	4.5	3.8
Muskoka Bay	9.3	291	4.3	3.6
Lake Muskoka (11 stations)	5.3	210	1.5	5.1

- filamentous algae (Zygnema, sp.) occurred on Trading Bay, Rabbit Bay and Pancake Bay (Lake of Bays) in August 1986 (M. Jackson - unpub. data and OME, 1986). No significant growth occurred in any other areas of the lakes. The presence of this particular filamentous algae is often considered as an early indicator of acidification.
- the comparison of the volume-weighted and tube composite sampling methodology showed no significant differences.

RECOMMENDATIONS

- reduce the number of sampling stations on the four lakes from 48 to 26 (Figure 1-4, Appendix 1 and Figures 5-8, Appendix 4) to focus on the embayments.

- sample for dissolved oxygen only at the 10 sites which showed a hypolimnetic depletion in 1986

- monitor all 48 stations every three to five years

- sample Gravenhurst and Muskoka Bay bi-weekly by the Volume-weighed Sampling Methodology

- map the occurrence of the filamentous algae annually.

INTRODUCTION

The Muskoka Lakes Monitoring Project began in 1986. The objectives are to:

- assess the degree of enrichment of Lakes Muskoka, Joseph, Rosseau and Lake of Bays with emphasis on the embayments;
- compare the 1986 results with those of previous surveys and to determine if there has been any significant change in water quality;
- update the acid sensitivity assessment for Lake of Bays;
- document the occurrence and distribution of filamentous algae;
- continue the long-term assessment of the nutrient status of Gravenhurst Bay.

Despite their size and importance both as a recreational resource and to the regional economy, no routine monitoring programmes for any of these lakes existed before 1986. The only exception is Gravenhurst Bay on Lake Muskoka which had been sampled from 1969 to 1985 by O.M.E. (Phytoplankton Taxonomy Sect.). During the early 1970's, Gravenhurst Bay experienced periodic algae blooms associated with excessive nutrient inputs from the Gravenhurst Bay Sewage Treatment Plant (STP). (Dillon et al, 1978). In 1971, the Gravenhurst STP became one of the first sewage treatment plants in Ontario to be equipped with phosphorus removal technology. This reduced greatly the amount of phosphorus entering Gravenhurst Bay. Due to problems with a second treatment plant in 1976, Gravenhurst Bay chlorophyll-a values reverted to pretreatment values. These problems were corrected in April 1976 and since then, except for 1980, a reduced steady state for phosphorus and chlorophyll a has prevailed.

This report summarizes the water quality data collected from the 48 stations which were established on the four lakes in 1986. The data includes epilimnetic chemistry, euphotic zone chlorophyll and dissolved oxygen profiles.

METHODS

The location and number of the sampling sites on the four lakes - Muskoka (13), Rosseau (12), Joseph (11), and Lake of Bays (12) includes both the embayments and the open areas of each lake (Tables 1, 2 and Figures 1-4, Appendix 1). One of the priorities of the programme is to sample the near shore areas and, therefore, embayments are sampled to a maximum depth of 20 m. The morphometry of each site (Tables 5-8, Appendix 1) was digitized from the maps of the Canadian Hydrographic Survey and volumetric estimates allowed sampling by volume-weighted methodology (Locke and Scott DR 86/4). Epilimnion depth was defined as the depth of thermal stratification (Wetzel, 1975). The euphotic zone, sampled for chlorophyll and phytoplankton, was defined as two times (2X) the secchi depth measurement.

Hypolimnetic oxygen depletion was assessed on the basis of a dissolved oxygen profile made from four depths at each station.

The exceptions are Gravenhurst (IM1) and Muskoka Bay (IM13) on Lake Muskoka and four stations on Lake of Bays; Trading Bay (IB2), Bigwin Is (IB5), Dwight Bay (IB7), and Whiskey Bay (IB12). These basins are sampled at every odd metre from 1 m below the surface to the maximum depth.

Sampling occurred monthly throughout the ice-free season in each basin with the exception of Gravenhurst and Muskoka Bays on Lake Muskoka which were sampled bi-weekly. In addition to the volume-weighted sampling, a tube composite sample was collected. This produced continuity with data collected as unfiltered tube composites from 1972 to 1985 (Ken Nicholls, unpub. data) and allowed comparisons between the tube composite and volume-weighted sampling methods. The tube composite samples were collected by lowering a tygon tube (8 m by 2.5 cm) to a depth of 6 or 8 m (the euphotic zone). The tube was capped and the depth integrated sample thoroughly mixed in a carboy and then poured into the appropriate sampling containers for analysis. Unlike the volume-weighted samples, the tube composite samples are not filtered.

Table 2. Inland Lakes Station Identification

Field ID	LIS #	Station Description
Lake Joseph		
IJ1	98 0100 201 01	Frazer Is Pt Cockburn
IJ2	98 0100 202 01	Hamer Bay
IJ3	98 0100 203 01	Gordon Bay
IJ4	98 0100 204 01	Yoho Island
IJ5	98 0100 205 01	Little Lake Joseph
IJ6	98 0100 206 01	Chief's Island
IJ7	98 0100 207 01	Joseph R (Riverdale Is)
IJ8	98 0100 208 01	Badegerow Island
IJ9	98 0100 209 01	Footes Bay
IJ10	98 0100 210 01	Black Forest Is (Clause Pt)
IJ11	98 0100 211 01	Cox Bay
Lake Rosseau		
IR1	98 0100 301 01	Cameron Bay (Rosseau)
IR2	98 0100 302 01	Morgan Bay
IR3	98 0100 303 01	Wiley's Bay
IR4	98 0100 304 01	Skeleton Bay
IR5	98 0100 305 01	Rest Harbour
IR6	98 0100 306 01	Tobin Is (Ravenscrag Pt)
IR7	98 0100 307 01	Portage Bay
IR8	98 0100 308 01	Brackenrig Bay
IR9	98 0100 309 01	Arthurlie Bay
IR10	98 0100 310 01	Minett (Ouno Is)
IR11	98 0100 311 01	Venetia Group
IR12	98 0100 312 01	Mutchinbacker Bay

Table 2 (cont'd)

Field ID	LIS #	Station Description
Lake Muskoka		
IM1	98 0100 401 01	Gravenhurst Bay
IM2	98 0100 402 01	South Bay
IM3	98 0100 403 01	Stephens Bay
IM4	98 0100 404 01	Birch Is (East end)
IM5	98 0100 405 01	Walker's Pt (Browning Is W)
IM6	98 0100 406 01	Pine Needle Pt - Taylor Is
IM7	98 0100 407 01	Bala Bay
IM8	98 0100 408 01	Dudley Bay
IM9	98 0100 409 01	North Bay
IM10	98 0100 410 01	East Bay (Morris I-L Rock Is)
IM11	98 0100 411 01	Crown Is Pudding Rock
IM12	98 0100 412 01	Mirror Lake
IM13	98 0100 413 01	Muskoka Bay
Lake of Bays		
IB1	98 0100 101 01	Pancake Bay (Johnny Cake B)
IB2	98 0100 102 01	Trading Bay
IB3	98 0100 103 01	Rabbit Bay
IB4	98 0100 104 01	Ten Mile Bay
IB5	98 0100 105 01	Bigwin Is.
IB6	98 0100 106 01	Haystack Bay
IB7	98 0100 107 01	Dwight Bay
IB8	98 0100 108 01	Portage Bay
IB9	98 0100 109 01	Seagull Rock
IB10	98 0100 110 01	Roothog Is - Black Pt
IB11	98 0100 111 01	Whitehouse Bay
IB12	98 0100 112 01	Whiskey Bay

RESULTS

The chemistry summary of each basin (Appendix 2) and each lake (Table 3) are mean volume-weighted epilimnetic data for the period of June to October 1986. The chlorophyll data for each basin (Appendix 2) and each lake (Table 3 and 15) are euphotic zone ice-free 1986 mean values.

A. Nutrient Status of all Lakes

At present, the results show that with the exception of Muskoka and Gravenhurst Bay, the four lakes are representative of oligotrophic lakes in the Canadian Shield. Concentrations of total phosphorus and total Kjeldahl nitrogen ranged from 3.22 to 5.3 $\mu g\ L^{-1}$, and 170 - 210 $\mu g/L^{-1}$ respectively, and chlorophyll-a levels are low 1.4 to 1.9 μgL^{-1}, (Table 3).

B. Nutrient Status of Gravenhurst Bay

In Muskoka and Gravenhurst Bays, levels of all nutrient status indicators are higher.

The data for phosphorus and chlorophyll levels exists from 1969 to 1986 (Table 3). In Gravenhurst Bay, the mean values of total phosphorus was 44 $\mu g.L^{-1}$ and for chlorophyll was 9.8 $\mu g.L^{-1}$ (Table 4), before the installation of the sewage treatment plant in 1971. Mean for phosphorus and chlorophyll-a from 1981 to 1986 is 12.9 µg/L and 4.5 µg/L, respectively.

Table 3. A summary of 1986 epilimnetic chemistry for each of the study lakes. Values given are means and standard deviation of each parameter measured on each lake.

		Lake Joseph	Lake Rosseau	Lake of Bays	Muskoka including IM1 and IM13	Muskoka excluding IM1 and IM13
ALKTI	mg/L as $CaCO_3$	3.16 (0.18)	4.40 (0.19)	3.55 (0.28)	5.17 (0.65)	4.64 (0.43)
Ca	mg/L	3.58 (0.08)	3.64 (0.13)	3.06 (0.12)	3.77 (0.20)	3.56 (0.19)
Cl	mg/L	5.03 (0.08)	3.04 (0.18)	1.63 (0.14)	3.81 (0.23)	3.19 (0.21)
COLTR	True colour	5.39 (1.73)	12.9 (2.16)	10.4 (2.46)	17.3 (3.9)	17.14 (3.70)
Conductivity	µmhos/cm	48.3 (0.37)	42.9 (0.46)	35.98 (0.54)	47.6 (0.82)	43.9 (0.61)
DIC	mg/L (as C)	0.82 (0.10)	1.12 (0.17)	0.91 (0.13)	1.27 (0.17)	1.14 (0.14)
DOC	mg/L (as C)	2.35 (0.14)	2.92 (0.13)	2.88 (0.13)	3.44 (0.17)	3.39 (0.15)
Fe	µg/L	18.7 (14.3)	32.6 (16.71)	35.9 (12.9)	65.1 (29.98)	55.8 (19.6)
F	µg/L	39.2 (1.19)	40.05 (1.19)	39.7 (0.88)	40.2 (1.09)	40.5 (1.0)
K	mg/L	0.59 (0.03)	0.60 (0.02)	0.47 (0.01)	0.62 (0.02)	0.59 (0.02)
Mg	mg/L	0.82 (0.01)	0.87 (0.02)	0.90 (0.02)	0.97 (0.02)	0.93 (0.02)
Na	mg/L	3.14 (0.08)	2.18 (0.04)	1.45 (0.04)	2.74 (0.07)	2.38 (0.06)
NH_4	µg/L (as N)	9.12 (3.9)	8.64 (3.19)	9.63 (4.9)	13.82 (8.52)	9.89 (3.80)
NO_3	µg/L (as N)	117.2 (12.9)	190.17(21.3)	131.9 (27.6)	215.06(30.5)	213.2 (24.9)
TKN	µg/L (as N)	170.0 (29.0)	190.9 (23.9)	179.5 (26.4)	224.88(21.1)	210.2 (17.8)
pH		6.75 (0.10)	6.83 (0.08)	6.73 (0.08)	6.82 (0.08)	6.79 (0.07)
Total Phosphorus	µg/L	3.22 (0.63)	4.48 (1.02)	3.83 (0.71)	6.16 (2.8)	5.3 (1.92)
Si	mg/L	0.28 (0.05)	1.03 (0.04)	1.53 (0.07)	1.66 (0.09)	1.75 (0.06)
SO_4	mg/L (as SO_4)	8.49 (0.14)	7.41 (0.67)	7.58 (0.39)	7.60 (0.47)	7.43 (0.46)
Acidified Chlorophyll-a	$\mu g/L^{-1}$	1.36 (0.56)	1.01 (0.26)	1.19 (0.27)	1.54 (1.3)	1.03 (0.22)
Chlorophyll-a	$\mu g/L^{-1}$	1.92 (0.55)	1.40 (0.32)	1.67 (0.35)	2.10 (1.44)	1.52 (0.26)
Secchi Depth	m	7.4 (0.91)	6.4 (1.1)	6.3 (0.92)	4.9 (0.81)	5.1 (0.66)

Table 4. The long-term Gravenhurst Bay Total Phosphorus and Chlorophyll-a Data (Dillon, 1978 and K. Nicholls, unpub. data)

	P($\mu g.L^{-1}$)	Chl-a
1969	42	10.6
1970	39	5.1
1971	52	13.8
1972	35	8.1
1973	33	6.9
1974	25	5.0
1975	20	5.0
1978	11.9	3.3
1979	12.7	3.6
1980	20.8	9.7
1981	15.7	3.5
1982	12.8	3.0
1983	16.0	6.1
1984	9.8	4.0
1985	11.3	5.2
1986	11.4	5.3

C. Sampling Site Comparisons

The selection of sampling sites included both the open lake areas and the embayments. When comparing the 1986 data from all of the stations in each lake, the between-station differences in chemistry are small (Note: S.D. data - Table 3). Therefore, a reduction in the number of sampling sites would not alter the integrity of a whole-lake data set. The stations eliminated for the 1987 sampling season include:

1. Lake Muskoka
   - IM2 - South Bay
   - IM5 - Walker's Pt (Browing Is)
   - IM7 - Bala Bay
   - IM9 - North Bay
   - IM10 - East Bay (Morris Is - Rock Is)
   - IM11 - Crown Is (Pudding Rock)

2. Lake Joseph
   - IJ2 - Hamer Bay
   - IJ4 - Yoho Island
   - IJ8 - Badegerow Is
   - IJ10 - Black Forest Is

3. Lake Rosseau
   - IR3 - Wiley's Bay
   - IR5 - Rest Harbour
   - IR6 - Tobin Is (Ravenscrag Pt)
   - IR11 - Venetia Group
   - IR12 - Mutchinbacher Bay

4. Lake of Bays
   - IB5 - Bigwin Is
   - IB6 - Haystack Bay
   - IB9 - Seagull Rock
   - IB10 - Roothog Is - Black Pt

D. Dissolved Oxygen

The dissolved oxygen data (Appendix 3) are profiles from each basin. Ten stations have August and September dissolved oxygen data below 5 ppm in their hypolimnion, although only 3 became anoxic in 1986 - Gravenhurst Bay, Muskoka Bay (Lake Muskoka) and Pancake Bay (Lake of Bays). The other seven are small enclosed embayments. These stations were:

1. Lake Muskoka
   - . Gravenhurst Bay
   - . Pine Needle Pt (Taylor Is)
   - . Dudley Bay
   - . Muskoka Bay

   Lake Rosseau
   - . Cameron Bay (at Rosseau)
   - . Birch Is - (East end) Skeleton Bay

   Lake Joseph
   - . Little Lake Joseph
   - . Chief's Island
   - . Joseph River (Riverdale Is)

   Lake of Bays
   - . Pancake Bay

Each of these sites is a part of the 1987 sampling program.

E. Alkalinity - Lake of Bays

The Lake of Bays is classified as moderately sensitive (50-200 $\mu eq\ L^{-1}$) to acidic deposition. The t-test statistic ($p = 0.016$) indicates a significant difference between mean alkalinity measured in 1982 and 1986. The 1982 mean data is higher and can be explained by the two different sampling methods.

Lake of Bays was sampled at 9 sites on one occasion in July 1982. The epilimnetic alkalinity of 61.4 μeq L^{-1} (DRC, unpub. data) was determined as the mean of all samples. The value for 1986 (70.9 μeq L^{-1}) represents the mean of 5 observations made between June and October at 12 sampling sites.

F. Filamentous Algae (Zygnema, sp.)

The survey of these lakes in August 1986 (M. Jackson, pers. comm.) found the filamentous algae (Zygnema, sp.) in three basins only on the Lake of Bays. These bays, Pancake, Trading and Rabbit, are the most eastern three basins (Appendix 1, Figure 4). This is the first documentation of this algae species in the Lake of Bays. The algae is considered to be an early biotic indicator of acidification (Schindler et al. - 1985).

G. Sampling Method Comparisons

Gravenhurst Bay was sampled by both the volume-weighted and the tube composite methods. The tube composite samples were collected from 0-6 m or 0-8 m (the euphotic zone) and were not filtered. The comparable volume-weighted data were obtained from filtered, epilimnetic samples. The epilimnetic depth ranged from 0-4 to 0-6 m during the 1986 ice-free season. To determine if the volume-weighted samples are comparable to the 1986 tube composite data and, therefore, all previously collected samples, the data was analyzed both by regression (Table 5) and by a paired t-test (Table 6).

The comparison of the data with the paired t-test indicates that only F, NH_4, NO_3 and TP have significant differences in the means for the two types of data collection. For total phosphorus, ammonium and nitrate, the mean tube composite data is higher than the volume-weighted data. For each of these parameters, however, a highly significant ($p < 0.01$) regression indicates a strong relationship between values obtained by each sampling technique. For F, NO_3 and NH_4 the two methods are highly correlated ($r > 0.9$). Slopes of near unity and low values for the Standard

Error of Estimation (S.E.E.) made by the regression indicate that between method differences are small and correctable. For TP, a lower correlation ($r = 0.7$) and slope and a greater (S.E.E.), indicate consistent and large differences attributable to sampling techniques, which is shown as a higher mean value for the tube composite (Tc) samples. This bias only shows up for TP and may be partially explained by the fact that the Tc samples are unfiltered.

The linear regression data (Table 5) suggests that data collected by the two methods for Ca, DOC, Mg and pH are not consistently related. For each of these parameters, however, the t-test shows no significant difference in the mean values and the lack of a significant regression may only indicate that for each of these parameters, the data are scattered in a very narrow range.

Table 5. Gravenhurst Bay - volume-weighted epilimnion data and tube composite data: a test for linearity.

Parameter	$\bar{x}_{tc}$	$\bar{x}_{vw}$	Correlation Coefficient	Slope	Standard Error of the Estimate	[1]Significance of the Regression
ALKTI	8.84	8.26	0.605	1.84	0.767	*
Ca	5.227	5.234	0.456	0.339	0.220	--
Cl	7.705	7.750	0.952	1.18	0.127	***
COLTR	18.917	18.167	0.811	1.18	0.269	**
COND25	70.658	70.600	0.883	1.24	0.208	***
DIC	2.146	2.112	0.856	0.999	0.191	***
DOC	3.673	3.755	0.569	0.464	0.223	--
Fe	102.17	117.08	0.832	0.879	0.186	***
F	38.12	38.71	0.901	1.047	0.159	***
K	0.889	0.885	0.938	1.019	0.125	***
Mg	1.208	1.213	0.585	0.476	0.220	--
Na	5.045	5.065	0.899	1.119	0.181	***
NH_4	47.50	41.17	0.986	0.973	0.051	***
NO_3	269.42	254.0	0.944	0.846	0.093	***
TKN	342.73	319.09	0.833	0.761	0.168	**
pH	6.895	6.995	0.243	-0.378	0.477	--
phosphorus	11.43	9.86	0.708	0.440	0.132	**
Si	1.169	1.136	0.977	0.817	0.060	***
SO_4	8.70	8.64	0.883	1.051	0.186	***
CHl *a*	5.32	5.21	0.961	0.980	0.105	***

[1]Significance of the slope criteria:
--p>0.05 - not significant
*p<0.05
**p<0.01
***p<0.001

Table 6. Gravenhurst Bay - Tube composite - Volume-weighted data comparison by the paired t-test statistical analysis

Parameter	p-Value[1]	[1]Mean of the Difference	Standard Deviation
ALKTI	0.38	-0.57	2.19
Ca	0.90	0.007	0.191
Cl	0.31	0.045	0.142
COLTR	0.44	-0.075	3.22
COND25	0.88	-0.058	1.3
DIC	0.50	-0.034	0.171
DOC	0.15	-0.082	0.172
Fe	0.27	14.92	44.75
F	0.023	0.59	0.78
K	0.38	-0.005	0.016
Mg	0.71	0.005	0.039
Na	0.47	0.020	0.088
NH_4	0.011	-6.3	7.12
NO_3	0.105	-15.4	30.3
TKN	0.011	-23.6	25.0
pH	0.086	0.10	0.18
Phosphorus	0.001	-1.56	1.40
Si	0.18	-0.033	0.076
SO_4	0.48	-0.055	0.248

[1]If $p>.05$, there is no significant difference in the data sets
If $p<0.05$, there is a significant difference (ie. F, NH_4, NO_3, P)

CONCLUSIONS

The chemical data collected in 1986 indicate that the four lakes are oligotrophic with low nutrient and chlorophyll levels with the exception of specific embayments. Many of the stations within each lake are similar chemically. Therefore, a reduction in the number of basins sampled is planned.

The sampling of Gravenhurst and Muskoka Bays should continue because of the discharge of effluent into the lake from the Gravenhurst Sewage Treatment Plant has increased the nutrient levels.

Hypolimnetic depletion of dissolved oxygen was observed in only 10 of the 48 basins. Most of these 10 sites were small embayments and so anoxia was considered to be induced by the morphometric shape and depth of these ambayments, and not by excess nutrient input.

All of the lakes were classified as moderately sensitive to acidic deposition on the basis of alkalinity measurements of 60-200 µeq/L.

Filamentous algae (Zygnema, sp.) appeared in three bays of the Lake of Bays in August 1986.

Comparison of volume weighted and tube composite methods of epilimnion sampling indicated only minor differences between the two methods, and so the volume weighted methodology was retained for future surveys.

The lakes can be characterized with fewer sampling locations. Therefore, 26 sampling sites were retained for further sampling in 1987 and 1988.

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Appendix 1. 1986 Sampling Locations and Lake Morphometry

Sampling Locations

Figure 1	Lake Muskoka
2	Lake Joseph
3	Lake Rosseau
4	Lake of Bays

Lake Morphometry

Table 7	Lake Muskoka
8	Lake Joseph
9	Lake Rosseau
10	Lake of Bays

Figure 1: Lake Muskoka – 1986 Sampling Sites

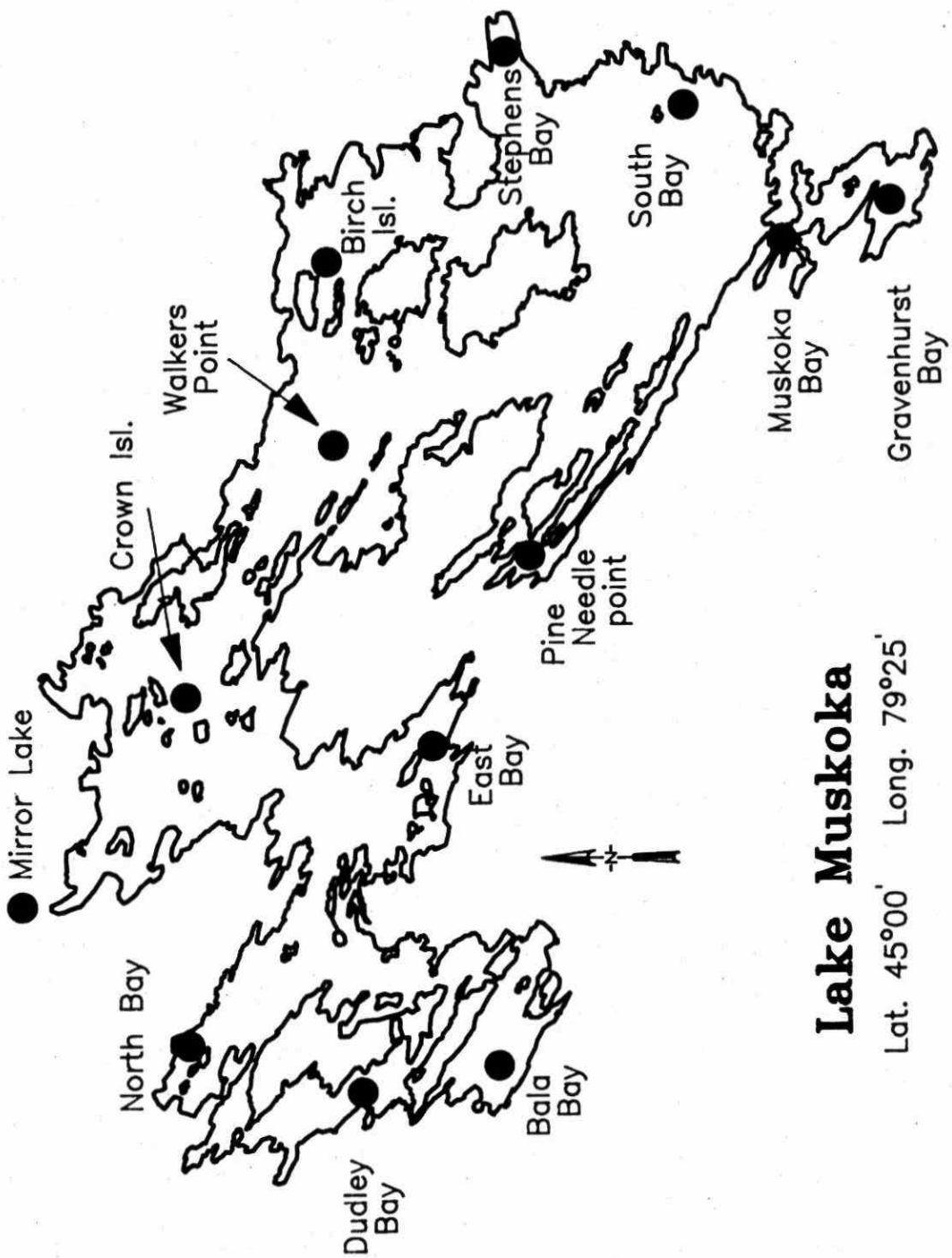


Table 7. Lake Muskoka: Mean depth, area and volume estimates for each of the 13 sampling stations.

Station #	Name	$\bar{z}$ (m)	Ao (ha)	Volume ($m^3 x 10^5$)
1	Gravenhurst Bay	9.76	179.40	175.00
2	South Bay	8.43	507.50	427.70
3	Stephens Bay	7.30	75.18	54.86
4	Birch Is (East end)	6.27	782.20	490.30
5	Walker's Pt	19.00	2083.00	3957.00
6	Pine Needle Pt	4.93	128.30	63.26
7	Bala Bay	9.47	611.40	579.10
8	Dudley Bay	7.63	362.20	276.40
9	North Bay	10.67	1134.00	1210.00
10	East Bay	17.47	741.40	1295.00
11	Crown Is	24.68	2096.00	5174.00
12	Mirror Lake	2.68	52.48	14.08
13	Muskoka Bay	7.09	241.20	170.90

Figure 2: Lake Joseph – 1986 Sampling Sites

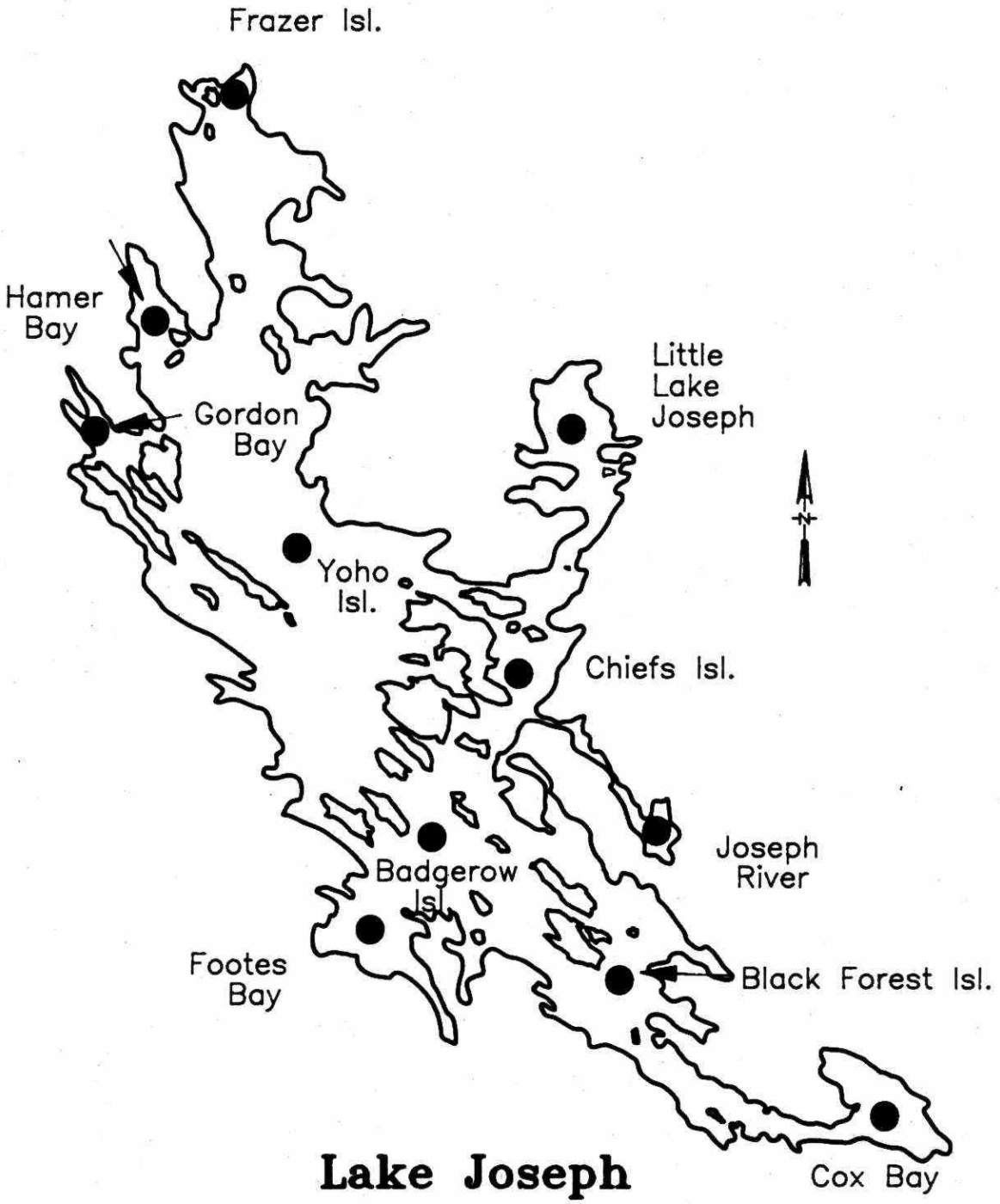
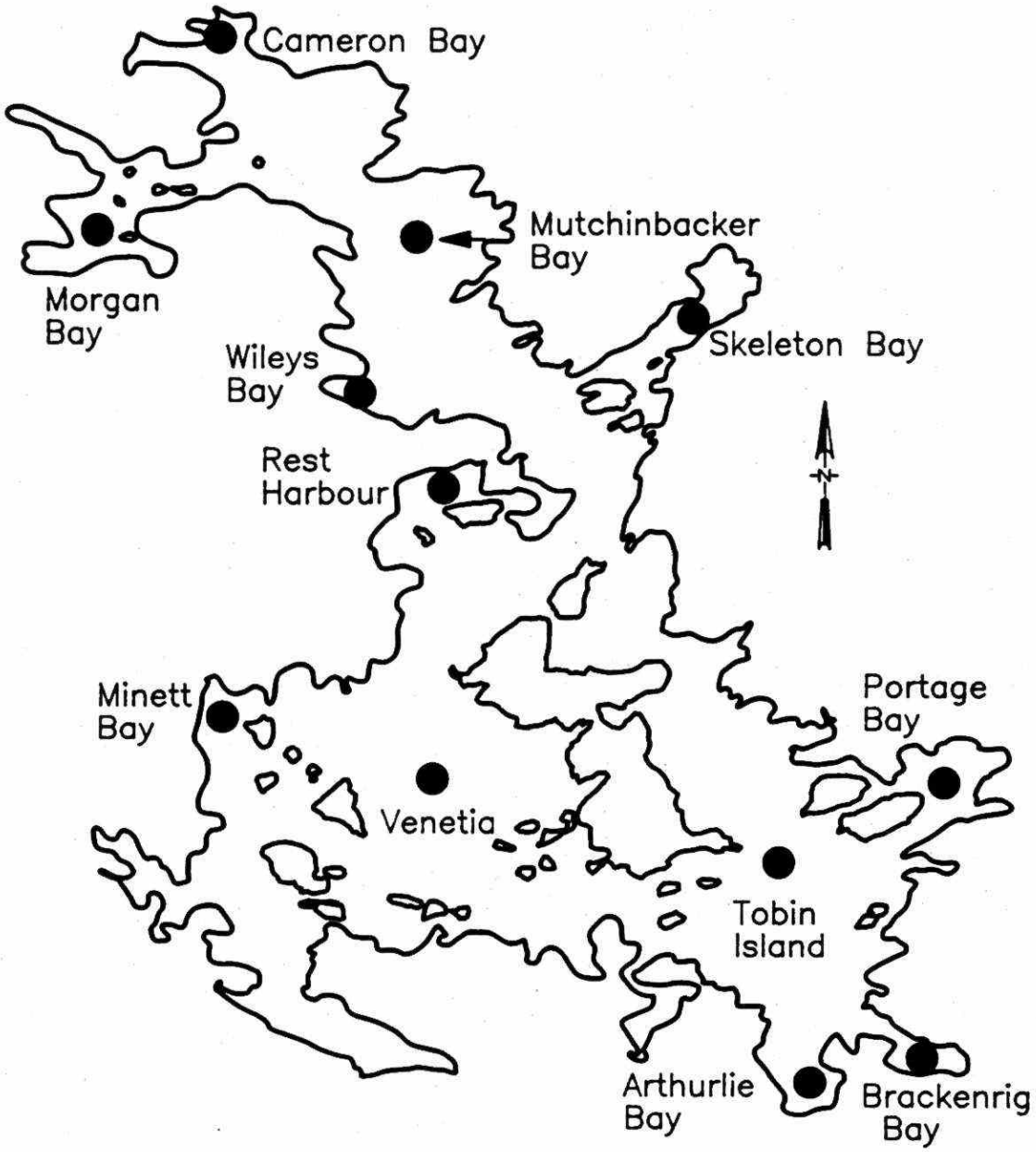


Table 8. Lake Joseph: Maximum depth, area and volume estimates for each of the 11 samling stations.

Station #	Name	$\bar{z}$ (m)	Ao (ha)	Volume ($m^3 x 10^5$)
1	Frazer Is	10.04	78.15	78.47
2	Hamer Bay	17.29	119.00	205.58
3	Gordon Bay	11.98	102.50	122.70
4	Yoho Is	35.74	1791.00	6399.00
5	Little Lake Joseph	15.48	304.10	470.80
6	Chief's Is	8.54	245.10	209.40
7	Joseph R	3.25	77.17	25.08
8	Badgerow Is	16.69	526.40	878.70
9	Footes Bay	15.74	250.80	394.70
10	Black Forest Is	10.83	438.00	474.50
11	Cox Bay	6.83	190.10	129.90

Figure 3: Lake Rosseau – 1986 Sampling Sites



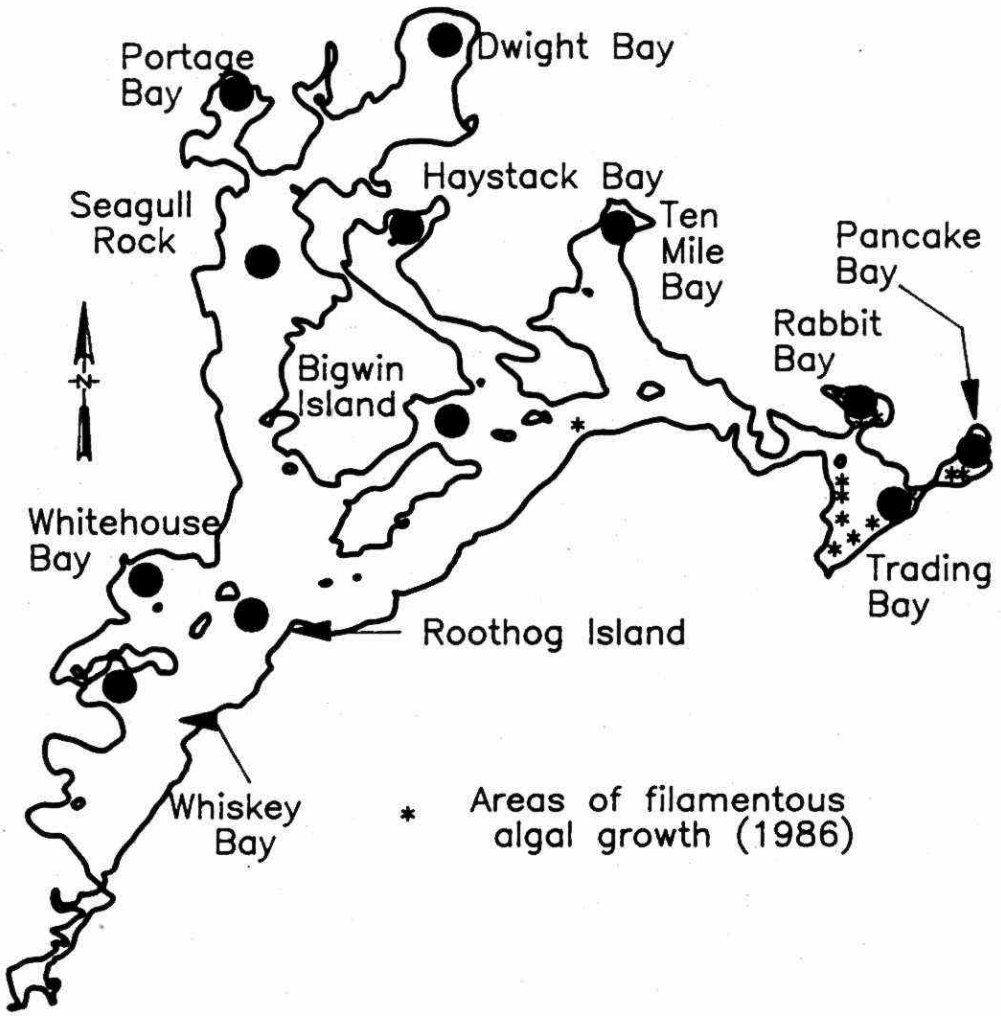
Lake Rosseau

Lat. 45°10' Long. 79°35'

Table 9. Lake Rosseau: Maximum depth, area and volume estimates for each of the 12 sampling stations.

Station #	Name	$\bar{z}$ (m)	Ao (ha)	Volume ($m^3 x 10^5$)
1	Cameron Bay	6.89	95.72	65.98
2	Morgan Bay	11.32	265.20	300.10
3	Wiley's Bay	9.56	37.57	35.93
4	Skeleton Bay	9.59	177.80	170.50
5	Rest Harbour	11.01	140.90	155.10
6	Tobin Is	16.11	1281.00	2064.00
7	Portage Bay	6.54	149.70	98.00
8	Brackenrig Bay	1.87	43.75	8.19
9	Arthurlie Bay	4.81	11.20	53.53
10	Minette (Ouno Is)	6.47	126.40	81.72
11	Venetia Group	22.79	1225.00	2792.00
12	Mutchinbaker Bay	37.22	1809.00	6731.00

Figure 4: Lake of Bays – 1986 Sampling Sites



Lake of Bays

Lat. 45°15' Long. 79°00'

Table 10. Lake of Bays: Maximum depth, area and volume estimates for each of the 12 sampling stations.

Station #	Name	$\bar{z}$ (m)	Ao (ha)	Volume ($m^3 x 10^5$)
1	Pancake Bay	4.54	69.89	31.75
2	Trading Bay	18.73	425.70	797.20
3	Rabbit Bay	10.63	72.52	77.06
4	Ten Mile Bay	13.34	779.30	1039.00
5	Bigwin Is	17.70	652.60	1155.00
6	Haystack Bay	12.52	245.00	306.80
7	Dwight Bay	22.27	649.60	1447.00
8	Portage Bay	14.53	173.60	252.20
9	Seagull Pk	28.17	902.70	2543.00
10	Roothog Is	26.43	1675.00	4428.00
11	Whitehouse Bay	18.99	402.70	764.50
12	Whiskey Bay	26.62	812.20	2162.00

Appendix 2. Volume-weighted epilimnetic mean chemistry.

Chemistry

Table 11 Lake Muskoka

12 Lake Joseph

13 Lake Rosseau

14 Lake of Bays

Chlorophyll

Table 15 Mean data for 4 lakes

Table 11: Lake Muskoka 1986 Epilimnetic Volume Weighted Mean Chemistry

STATION	pH	ALKT mg/L as CaCO3	ALKTI mg/L as CaCO3	DIC mg/L as C
IM1	7.00(0.138)	9.95 2.425	8.29 2.396	2.08 0.316
IM2	6.84(0.006)	6.16(0.237)	4.52(0.178)	1.11(0.207)
IM3	6.85(0.063)	7.20(1.929)	5.55(1.929)	1.10(0.189)
IM4	6.80(0.079)	6.44(0.539)	4.80(0.555)	1.13(0.144)
IM5	6.71(0.173)	6.12(0.388)	4.45(0.259)	1.20(0.217)
IM6	6.80(0.034)	6.26(0.265)	4.62(0.264)	1.14(0.102)
IM7	6.75(0.028)	6.12(0.212)	4.46(0.155)	1.12(0.071)
IM8	6.80(0.050)	6.24(0.358)	4.56(0.263)	1.26(0.305)
IM9	6.80(0.074)	6.04(0.252)	4.39(0.190)	1.06(0.087)
IM10	6.82(0.091)	6.00(0.337)	4.39(0.154)	1.05(0.078)
IM11	6.76(0.082)	6.13(0.238)	4.45(0.177)	1.10(0.107)
IM12	6.80(0.110)	6.52(0.648)	4.85(0.578)	1.24(0.054)
IM13	6.98(0.098)	9.51(1.351)	7.84(1.299)	1.91(0.271)

	Ca mg/L	Mg mg/L	Na mg/L	K mg/L
IM1	5.18(0.221)	1.20(0.040)	5.03(0.188)	0.88(0.044)
IM2	3.54(0.094)	0.95(0.013)	2.45(0.022)	0.58(0.008)
IM3	3.59(0.187)	0.94(0.016)	2.43(0.036)	0.59(0.014)
IM4	3.51(0.113)	0.96(0.019)	2.35(0.083)	0.58(0.015)
IM5	3.35(0.340)	0.92(0.037)	2.35(0.037)	0.58(0.017)
IM6	3.53(0.200)	0.94(0.010)	2.45(0.078)	0.58(0.019)
IM7	3.60(0.200)	0.93(0.022)	2.38(0.047)	0.58(0.015)
IM8	3.61(0.174)	0.94(0.017)	2.43(0.058)	0.59(0.017)
IM9	3.62(0.155)	0.94(0.014)	2.36(0.072)	0.59(0.019)
IM10	3.53(0.218)	0.94(0.013)	2.38(0.094)	0.59(0.025)
IM11	3.53(0.167)	0.94(0.012)	2.33(0.048)	0.58(0.013)
IM12	3.70(0.286)	0.89(0.022)	2.27(0.034)	0.62(0.024)
IM13	4.75(0.221)	1.14(0.030)	4.44(0.102)	0.80(0.040)

	&PPUT ug/L	NH4 ug/L	NO3 ug/L	TKN ug/L
IM1	9.86(1.22)	38.93(39.88)	256.64 75.453	320.00(36.374)
IM2	4.99(0.63)	10.25(2.50)	222.50 20.616	217.50(17.078)
IM3	5.25(1.05)	11.75(2.75)	226.25 19.311	205.00(17.321)
IM4	6.65(0.77)	11.50(4.65)	202.50 21.016	225.00(19.149)
IM5	4.79(0.68)	9.50(2.38)	226.25 24.958	190.00(34.641)
IM6	8.05(6.58)	10.25(4.86)	201.25 26.887	220.00(0.000)
IM7	7.27(6.85)	10.00(2.45)	217.50 26.300	200.00(8.165)
IM8	3.60(0.78)	9.50(4.20)	210.00 26.771	225.00(25.166)
IM9	3.50(0.45)	7.25(2.75)	221.25 24.958	217.50(12.583)
IM10	4.60(1.60)	8.50(3.42)	218.75 22.127	200.00(24.495)
IM11	4.62(0.87)	10.25(4.92)	216.25 14.930	212.50(12.583)
IM12	4.98(0.83)	10.00(6.93)	182.50 46.278	200.00(24.495)
IM13	9.26(3.2)	32.00(29.07)	194.09 47.477	290.91(42.061)

	COLTR (Hazen)	DOC mg/L as C	COND25 uS	FE mg/L
IM1	18.57(5.064)	3.79(0.17)	70.49(2.442)	108.93(75.68)
IM2	16.00(4.243)	3.43(0.10)	44.40(0.383)	50.75(13.83)
IM3	16.50(3.697)	3.38(0.17)	44.22(0.263)	50.75(14.91)
IM4	23.25(7.411)	3.75(0.40)	43.53(1.394)	132.5(32.02)
IM5	19.50(1.291)	3.63(0.40)	43.10(1.249)	61.25(18.14)
IM6	19.25(2.500)	3.40(0.00)	44.28(0.403)	68.00(36.94)
IM7	14.75(5.123)	3.35(0.10)	43.97(0.189)	38.75(15.00)
IM8	15.00(3.916)	3.38(0.10)	44.00(0.356)	37.00(17.96)
IM9	15.00(1.414)	3.33(0.05)	43.75(0.265)	42.00(20.18)
IM10	18.00(2.582)	3.38(0.10)	43.63(0.486)	37.75(8.958)
IM11	20.75(1.708)	3.40(0.12)	43.78(0.450)	49.75(18.37)
IM12	10.50(6.807)	2.90(0.16)	44.88(1.266)	45.00(18.99)
IM13	18.18(4.956)	3.66(0.28)	64.14(1.531)	123.82(98.86)

Table 11: Lake Muskoka Data continued

	Cl mg/L	SO4 mg/L	Si mg/L	F ug/L
IM1	7.69(0.407)	8.69(0.502)	1.15(0.227)	38.81(1.671)
IM2	3.34(0.160)	7.30(0.659)	1.84(0.082)	40.35(1.072)
IM3	3.31(0.193)	6.82(0.760)	1.84(0.079)	41.33(1.403)
IM4	3.11(0.125)	7.58(0.282)	1.88(0.083)	41.55(1.258)
IM5	3.10(0.212)	7.57(0.344)	1.83(0.055)	40.33(0.763)
IM6	3.30(0.204)	7.59(0.303)	1.81(0.058)	40.00(0.693)
IM7	3.18(0.194)	7.62(0.396)	1.83(0.044)	40.10(1.158)
IM8	3.20(0.274)	7.55(0.366)	1.82(0.057)	40.10(0.616)
IM9	3.11(0.246)	7.60(0.241)	1.83(0.058)	40.13(1.184)
IM10	3.14(0.266)	7.52(0.209)	1.82(0.054)	40.30(0.766)
IM11	3.18(0.185)	7.26(0.807)	1.80(0.057)	40.55(0.759)
IM12	3.18(0.290)	7.30(0.732)	1.01(0.070)	40.78(1.269)
IM13	6.69(0.164)	8.32(0.493)	1.16(0.214)	38.85(1.605)

Table 12: Lake Joseph 1986 Epilimnetic Volume Weighted Mean Chemistry

STATION	pH	ALKT mg/L as CaC03	ALKTI	DIC mg/L as C
IJ1	6.73(0.110)	4.60(0.316)	2.86(0.146)	0.72(0.074)
IJ2	6.73(0.050)	4.63(0.158)	2.81(0.182)	0.73(0.076)
IJ3	6.75(0.093)	4.72(0.208)	2.96(0.111)	0.77(0.101)
IJ4	6.69(0.068)	4.54(0.306)	2.85(0.240)	0.74(0.057)
IJ5	6.88(0.116)	5.37(0.254)	3.74(0.127)	0.88(0.112)
IJ6	6.77(0.088)	4.74(0.234)	3.10(0.166)	0.77(0.074)
IJ7	6.71(0.099)	5.90(0.399)	4.26(0.263)	1.24(0.115)
IJ8	6.78(0.140)	4.62(0.281)	2.98(0.202)	0.74(0.052)
IJ9	6.77(0.106)	4.60(0.281)	2.95(0.136)	0.88(0.211)
IJ10	6.72(0.098)	4.69(0.317)	3.01(0.162)	0.75(0.091)
IJ11	6.77(0.090)	4.94(0.263)	3.23(0.239)	0.81(0.109)

	Ca mg/L	Mg mg/L	Na mg/L	K mg/L
IJ1	3.66(0.056)	0.81(0.006)	3.30(0.133)	0.64(0.110)
IJ2	3.66(0.032)	0.81(0.010)	3.24(0.055)	0.58(0.021)
IJ3	3.66(0.040)	0.81(0.000)	3.52(0.095)	0.58(0.029)
IJ4	3.52(0.086)	0.80(0.012)	3.29(0.029)	0.60(0.023)
IJ5	3.53(0.064)	0.83(0.005)	2.54(0.039)	0.58(0.027)
IJ6	3.54(0.082)	0.82(0.013)	3.12(0.104)	0.59(0.027)
IJ7	3.59(0.086)	0.84(0.013)	2.60(0.083)	0.59(0.007)
IJ8	3.54(0.067)	0.81(0.006)	3.23(0.095)	0.60(0.010)
IJ9	3.54(0.089)	0.81(0.006)	3.29(0.064)	0.59(0.032)
IJ10	3.56(0.180)	0.81(0.023)	3.26(0.040)	0.58(0.029)
IJ11	3.54(0.117)	0.83(0.020)	3.17(0.091)	0.60(0.029)

	&PPUT ug/L	NH4 ug/L	NO3 ug/L	TKN ug/l
IJ1	2.42(0.506)	6.00(1.732)	139.33(4.041)	143.33(15.27)5
IJ2	2.43(0.988)	10.67(6.429)	139.00(1.000)	146.67(40.41)5
IJ3	2.95(0.000)	6.67(1.528)	121.33(6.110)	153.33(25.16)6
IJ4	2.58(0.382)	14.33(3.512)	141.67(10.408)	153.33(23.09)4
IJ5	4.26(0.368)	8.00(5.033)	30.00(19.579)	220.00(62.18)3
IJ6	3.47(0.802)	8.50(2.517)	106.50(21.205)	172.50(25.00)0
IJ7	5.26(1.240)	16.00 10.198	89.00(33.076)	250.00(66.83)3
IJ8	2.58(0.813)	9.67(5.033)	131.33(7.767)	153.33(23.09)4
IJ9	2.65(1.114)	7.67(2.887)	133.33(7.638)	153.33(15.27)5
IJ10	3.10(0.350)	6.33(2.082)	124.33(4.041)	146.67(5.774)
IJ11	3.71(0.354)	6.50(1.915)	133.75(27.573)	177.50(17.07)8

	COLTR (Hazen)	DOC mg/L as C	COND25 uS	FE mg/L
IJ1	4.67(2.082)	2.07(0.06)	49.00(0.100)	19.000(17.05)9
IJ2	4.33(1.528)	2.10(0.10)	49.23(0.115)	10.333(7.572)
IJ3	5.00(2.000)	2.17(0.06)	50.53(0.493)	16.333(12.66)2
IJ4	3.33(0.577)	2.30(0.26)	48.50(1.136)	10.000(1.000)
IJ5	6.25(2.217)	2.90(0.14)	44.40(0.424)	14.750(3.096)
IJ6	3.75(0.957)	2.30(0.08)	48.68(0.275)	24.750(25.38)2
IJ7	17.25(5.737)	3.05(0.44)	44.80(0.337)	57.250(45.22)1
IJ8	2.33(0.577)	2.20(0.10)	49.17(0.153)	10.667(7.371)
IJ9	3.00(1.000)	2.20(0.10)	49.27(0.153)	6.333(2.309)
IJ10	4.33(1.528)	2.23(0.12)	48.90(0.346)	24.333(26.85)8
IJ11	5.00(0.816)	2.30(0.08)	49.03(0.486)	12.250(8.342)

Table 12: Lake Joseph 1986 Data continued

	Cl mg/L	SO4 mg/l	Si mg/L	F ug/L
IJ1	5.30(0.071)	8.53(0.180)	0.23(0.031)	38.23(1.106)
IJ2	5.30(0.071)	8.73(0.074)	0.23(0.031)	37.87(1.007)
IJ3	5.68(0.189)	8.54(0.107)	0.21(0.042)	38.93(1.007)
IJ4	5.28(0.035)	8.62(0.035)	0.24(0.035)	38.10(1.652)
IJ5	3.92(0.104)	8.21(0.115)	0.25(0.041)	42.53(0.877)
IJ6	5.07(0.058)	8.59(0.101)	0.28(0.053)	39.33(0.759)
IJ7	3.88(0.194)	7.96(0.206)	0.58(0.147)	41.20(1.092)
IJ8	5.28(0.035)	8.64(0.121)	0.26(0.035)	37.63(1.914)
IJ9	5.35(0.000)	8.62(0.147)	0.26(0.035)	39.07(1.422)
IJ10	5.27(0.029)	8.48(0.111)	0.26(0.020)	39.23(0.681)
IJ11	4.97(0.076)	8.43(0.379)	0.34(0.038)	39.13(1.559)

Table 13: Lake Rosseau 1986 Epilimnetic Volume Weighted Mean Chemistry

STATION	pH	ALKT	ALKTI	DIC
		mg/L as CaCO3		mg/L as C
IR1	6.81(0.120)	6.03(0.205)	4.35(0.099)	1.06(0.087)
IR2	6.79(0.068)	6.00(0.297)	4.37(0.265)	1.27(0.410)
IR3	6.85(0.084)	5.96(0.242)	4.31(0.219)	1.04(0.101)
IR4	6.82(0.090)	6.19(0.162)	4.53(0.145)	1.13(0.112)
IR5	6.84(0.107)	5.96(0.259)	4.24(0.202)	1.05(0.092)
IR6	6.84(0.106)	6.01(0.186)	4.30(0.164)	1.36(0.458)
IR7	6.88(0.057)	6.07(0.200)	4.34(0.164)	1.05(0.111)
IR8	6.84(0.034)	6.93(0.235)	5.17(0.177)	1.34(0.155)
IR9	6.86(0.074)	6.08(0.227)	4.35(0.179)	1.07(0.097)
IR10	6.82(0.050)	5.83(0.333)	4.19(0.246)	1.04(0.079)
IR11	6.80(0.057)	5.93(0.279)	4.26(0.181)	0.98(0.242)
IR12	6.85(0.092)	5.97(0.265)	4.35(0.218)	1.06(0.060)

	Ca	Mg	Na	K
	mg/L	mg/L	mg/L	mg/L
IR1	3.54(0.226)	0.86(0.022)	2.19(0.019)	0.59(0.017)
IR2	3.63(0.070)	0.86(0.015)	2.16(0.046)	0.59(0.026)
IR3	3.54(0.151)	0.86(0.038)	2.17(0.038)	0.59(0.005)
IR4	3.74(0.147)	0.88(0.030)	2.18(0.052)	0.58(0.044)
IR5	3.62(0.184)	0.86(0.010)	2.18(0.028)	0.60(0.010)
IR6	3.70(0.196)	0.87(0.010)	2.18(0.060)	0.59(0.000)
IR7	3.68(0.161)	0.87(0.017)	2.16(0.022)	0.60(0.000)
IR8	3.76(0.069)	0.91(0.027)	2.20(0.016)	0.63(0.019)
IR9	3.70(0.129)	0.87(0.008)	2.19(0.025)	0.60(0.010)
IR10	3.59(0.037)	0.86(0.013)	2.20(0.048)	0.59(0.034)
IR11	3.60(0.086)	0.86(0.017)	2.20(0.041)	0.63(0.056)
IR12	3.58(0.100)	0.85(0.026)	2.18(0.024)	0.59(0.022)

	&PPUT	NH4	NO3	TKN
	ug/L	ug/L	ug/l	ug/L
IR1	4.39(1.01)	8.50(2.65)	197.50(15.5)	195.00(19.15)
IR2	3.73(0.56)	5.67(2.08)	193.33(18.3)	173.33(30.55)
IR3	3.40(0.41)	7.75(2.87)	202.50(17.6)	200.00(45.46)
IR4	4.09(0.78)	9.00(5.60)	192.50(18.8)	195.00(12.91)
IR5	3.65(0.62)	7.50(4.65)	205.00(21.1)	190.00(16.33)
IR6	2.98(0.08)	8.00(4.24)	202.50(18.8)	207.50(12.58)
IR7	3.95(0.31)	8.75(3.95)	191.25(20.6)	187.50(20.62)
IR8	9.31(1.10)	16.25(0.96)	101.25(52.4)	235.00(34.16)
IR9	4.15(0.58)	9.75(4.03)	195.00(23.1)	185.00(28.87)
IR10	3.40(0.46)	7.25(2.06)	201.25(22.3)	175.00(12.91)
IR11	3.90(0.39)	7.50(2.38)	201.25(13.7)	167.50(23.63)
IR12	6.78(5.89)	7.75(2.75)	198.75(13.7)	180.00(29.44)

	COLTR	DOC	COND25	FE
	(Hazen)	mg/L as C	uS	mg/L
IR1	17.00(5.416)	3.13(0.13)	42.67(0.369)	49.25(27.77)
IR2	13.33(2.082)	2.90(0.10)	42.43(0.503)	46.00(31.43)
IR3	14.25(2.062)	2.95(0.10)	42.80(0.183)	21.75(6.85)
IR4	13.75(2.062)	2.90(0.08)	43.55(0.129)	36.00(10.71)
IR5	12.25(0.500)	2.93(0.10)	42.88(0.222)	19.25(7.04)
IR6	11.25(0.957)	2.83(0.21)	43.00(0.231)	18.00(9.70)
IR7	10.50(3.697)	2.88(0.13)	43.15(0.173)	18.50(7.55)
IR8	14.00(3.266)	3.00(0.08)	43.95(0.480)	96.00(66.51)
IR9	11.25(1.258)	2.85(0.10)	42.60(1.200)	17.50(5.20)
IR10	11.50(1.291)	2.85(0.06)	42.83(0.359)	13.75(4.86)
IR11	11.75(1.708)	2.80(0.18)	42.55(0.520)	17.25(7.50)
IR12	14.00(1.633)	3.00(0.29)	42.08(1.153)	37.75(15.41)

Table 13: Lake Rosseau 1986 Data continued

	Cl mg/L	SO4 mg/L	Si mg/L	F ug/L
IR1	3.06(0.111)	7.48(0.679)	1.07(0.038)	40.73(1.466)
IR2	3.03(0.161)	7.41(0.636)	1.03(0.012)	41.27(1.007)
IR3	3.03(0.096)	7.39(1.013)	1.04(0.010)	40.28(0.991)
IR4	3.07(0.104)	7.33(0.860)	1.01(0.020)	40.68(0.885)
IR5	3.00(0.071)	7.35(0.944)	1.05(0.035)	39.50(0.683)
IR6	3.02(0.759)	7.56(0.380)	1.00(0.028)	39.15(1.718)
IR7	3.00(0.212)	7.43(0.648)	1.04(0.043)	39.38(0.862)
IR8	3.09(0.025)	7.61(0.599)	1.00(0.174)	40.33(1.522)
IR9	3.05(0.204)	7.60(0.462)	1.03(0.042)	38.98(1.269)
IR10	3.15(0.041)	7.24(0.843)	1.02(0.028)	40.10(0.879)
IR11	3.07(0.225)	7.50(0.281)	1.02(0.034)	39.53(1.234)
IR12	2.90(0.183)	7.06(0.748)	1.03(0.019)	40.68(1.704)

Table 14: Lake of Bays 1986 Epilimnetic Volume Weighted Mean Chemistry

STATION	pH	ALKT mg/L as CaCO3	ALKTI mg/L as CaCO3	DIC mg/l as C
IB1	6.81(0.120)	6.03(0.205)	4.35(0.099)	1.06(0.087)
IB2	6.76(0.089)	5.07(0.336)	3.42(0.351)	0.92(0.131)
IB3	6.77(0.094)	5.16(0.373)	3.50(0.329)	0.89(0.123)
IB4	6.70(0.025)	5.37(0.459)	3.62(0.314)	0.94(0.132)
IB5	6.74(0.097)	5.19(0.420)	3.51(0.319)	0.91(0.162)
IB6	6.76(0.056)	5.33(0.400)	3.63(0.250)	0.91(0.103)
IB7	6.67(0.084)	5.23(0.535)	3.56(0.393)	0.94(0.158)
IB8	6.71(0.054)	5.19(0.304)	3.55(0.281)	0.89(0.126)
IB9	6.70(0.054)	5.06(0.374)	3.39(0.308)	0.85(0.123)
IB10	6.74(0.045)	4.99(0.297)	3.35(0.245)	0.85(0.114)
IB11	6.69(0.071)	5.04(0.269)	3.37(0.188)	0.88(0.107)
IB12	6.64(0.106)	4.96(0.329)	3.30(0.283)	0.89(0.137)

	Ca mg/L	Mg mg/L	Na mg/L	K mg/L
IB1	3.54(0.226)	0.86(0.022)	2.19(0.019)	0.59(0.017)
IB2	2.82(0.189)	0.86(0.033)	1.21(0.058)	0.44(0.019)
IB3	2.89(0.069)	0.87(0.019)	1.38(0.055)	0.45(0.013)
IB4	2.95(0.054)	0.92(0.025)	1.40(0.029)	0.46(0.013)
IB5	3.03(0.087)	0.91(0.017)	1.36(0.017)	0.46(0.016)
IB6	2.89(0.129)	0.92(0.032)	1.37(0.022)	0.47(0.013)
IB7	3.02(0.058)	0.90(0.030)	1.49(0.074)	0.45(0.013)
IB8	3.05(0.066)	0.90(0.026)	1.42(0.032)	0.45(0.013)
IB9	2.93(0.172)	0.89(0.010)	1.43(0.039)	0.45(0.010)
IB10	2.96(0.045)	0.90(0.013)	1.39(0.026)	0.46(0.015)
IB11	3.00(0.119)	0.91(0.021)	1.38(0.024)	0.47(0.005)
IB12	2.99(0.177)	0.91(0.025)	1.38(0.043)	0.46(0.005)

	&PPUT ug/L	NH4 ug/L	NO3 ug/L	TKN ug/L
IB1	4.39(1.01)	8.50(2.65)	197.50(15.55)	195.00(19.149)
IB2	3.82(0.51)	8.80(3.63)	93.00(33.02)	182.50(17.078)
IB3	4.23(0.44)	9.00(5.87)	73.40(31.93)	180.00(33.912)
IB4	3.96(0.95)	12.50(3.42)	118.00(24.55)	180.00(27.080)
IB5	3.83(0.61)	11.25(7.93)	141.25(26.58)	177.50(41.932)
IB6	3.94(0.31)	7.00(2.94)	117.50(26.30)	180.00(14.142)
IB7	3.74(1.53)	11.75(5.80)	130.00(24.83)	200.00(29.439)
IB8	4.16(0.16)	10.00(4.16)	130.25(28.41)	172.50(42.720)
IB9	3.59(0.47)	10.75(6.55)	138.75(31.19)	177.50(20.616)
IB10	3.34(0.43)	9.25(5.06)	145.00(26.77)	182.50(29.861)
IB11	3.50(0.92)	8.25(6.34)	145.00(30.28)	177.50(5.000)
IB12	3.51(1.19)	8.50(4.43)	153.50(32.18)	150.00(35.590)

	COLTR (Hazen)	DOC mg/L as C	COND25 uS	FE mg/L
IB1	17.00(5.416)	3.13(0.13)	42.67(0.369)	49.250(27.765)
IB2	8.00(1.414)	2.72(0.19)	33.74(0.885)	37.800(14.873)
IB3	8.20(1.789)	2.64(0.15)	35.00(0.400)	30.600(13.390)
IB4	8.25(3.594)	2.75(0.06)	35.77(0.252)	29.000(8.124)
IB5	8.50(1.291)	2.80(0.12)	35.33(0.359)	23.500(13.772)
IB6	7.25(1.258)	2.65(0.06)	36.90(2.334)	27.000(7.616)
IB7	13.75(4.573)	3.45(0.21)	35.33(0.499)	67.250(19.015)
IB8	12.00(2.160)	3.00(0.14)	35.68(0.320)	46.750(9.605)
IB9	12.75(2.872)	3.05(0.13)	35.43(0.320)	37.500(7.937)
IB10	9.00(1.414)	2.80(0.08)	35.40(0.141)	20.500(6.191)
IB11	11.25(2.500)	2.85(0.17)	35.43(0.171)	39.500(21.672)
IB12	8.75(1.258)	2.73(0.13)	35.10(0.424)	21.750(4.992)

Table 14: Lake of Bays 1986 Data continued

	Cl mg/L	SO4 mg/L	Si mg/L	F ug/L
IB1	3.06(0.111)	7.80(0.260)	1.07(0.038)	40.73(1.466)
IB2	1.28(0.220)	7.60(0.385)	1.45(0.066)	40.54(0.713)
IB3	1.54(0.089)	7.65(0.266)	1.45(0.111)	39.64(0.503)
IB4	1.55(0.100)	7.65(0.403)	1.60(0.071)	39.63(0.386)
IB5	1.46(0.063)	7.62(0.509)	1.62(0.100)	39.18(0.873)
IB6	1.45(0.041)	7.69(0.446)	1.55(0.115)	39.18(0.704)
IB7	1.64(0.206)	7.29(0.594)	1.58(0.041)	40.72(0.964)
IB8	1.54(0.149)	7.29(0.565)	1.61(0.077)	39.57(1.115)
IB9	1.59(0.214)	7.26(0.550)	1.60(0.075)	40.10(0.668)
IB10	1.41(0.118)	7.55(0.189)	1.59(0.090)	39.30(0.852)
IB11	1.47(0.222)	7.78(0.246)	1.61(0.019)	39.00(1.227)
IB12	1.51(0.236)	7.80(0.231)	1.63(0.066)	38.53(1.112)

Table 15: 1986 Euphotic zone Chlorophyll and Secchi Depth

LAKE MUSKOKA

STATION	ACID-A	S.D	CHL A	S.D	SECCHI	S.D
		(mg/L)			(m)	
IM1	4.455	3.158	5.427	2.849	3.791	0.596
IM5	0.800	0.216	1.275	0.222	5.325	0.585
IM3	0.975	0.709	1.475	0.640	4.950	0.714
IM4	0.950	0.238	1.500	0.200	3.400	0.337
IM5	0.775	0.171	1.375	0.275	4.950	0.451
IM6	1.600	0.976	2.200	1.013	5.350	0.624
IM7	0.950	0.129	1.400	0.141	5.625	0.395
IM8	1.075	0.320	1.550	0.173	5.725	0.532
IM9	0.925	0.287	1.275	0.263	5.800	0.424
IM10	1.025	0.126	1.400	0.141	5.275	0.287
IM11	1.150	0.420	1.625	0.479	4.825	0.911
IM12	1.150	0.420	1.625	0.479	4.825	0.911
IM13	4.270	3.407	5.190	3.325	3.556	0.594
LAKE JOSEPH						
IJ1	1.033	0.208	1.433	0.252	8.967	0.757
IJ2	1.067	0.306	1.533	0.208	8.767	1.270
IJ3	1.333	0.503	1.733	0.513	8.033	0.850
IJ4	1.367	0.115	1.867	0.153	8.033	1.079
IJ5	1.550	0.520	2.175	0.568	6.275	0.457
IJ6	1.525	0.556	2.175	0.591	7.325	1.215
IJ7	2.350	1.954	3.275	2.532	4.333	1.365
IJ8	1.300	0.346	1.633	0.306	7.567	0.833
IJ9	0.967	0.751	1.967	0.153	7.867	0.404
IJ10	1.367	0.416	1.733	0.208	7.067	0.115
IJ11	1.067	0.451	1.567	0.586	7.250	1.702
LAKE ROSSEAU						
IR1	1.100	0.163	1.550	0.300	5.800	1.386
IR2	0.800	0.141	1.250	0.208	6.633	0.462
IR3	0.933	0.208	1.300	0.245	6.767	1.012
IR4	0.900	0.115	1.300	0.183	6.233	1.457
IR5	0.925	0.096	1.200	0.183	7.667	0.702
IR6	0.850	0.300	1.275	0.150	6.667	0.208
IR7	1.100	0.503	1.425	0.403	7.167	0.569
IR8	1.775	0.150	2.350	0.265	3.233	0.611
IR9	1.075	0.359	1.425	0.359	6.533	0.451
IR10	0.975	0.222	1.325	0.263	5.867	2.854
IR11	0.850	0.300	1.250	0.100	7.233	0.252
IR12	0.875	0.287	1.200	0.216	6.700	0.200
LAKE OF BAYS						
IB1	1.100	0.163	1.550	0.300	5.800	1.386
IB5	1.125	0.369	1.700	0.620	6.260	0.503
IB3	2.100	0.735	2.740	1.090	6.040	0.513
IB4	1.000	0.100	1.675	0.236	5.850	0.794
IB5	1.200	0.100	1.550	0.300	7.100	0.392
IB6	1.267	0.306	1.800	0.316	6.075	0.877
IB7	1.000	0.173	1.425	0.299	5.200	0.920
IB8	0.933	0.231	1.525	0.096	5.675	1.417
IB9	0.833	0.208	1.350	0.100	6.150	1.034
IB10	1.267	0.289	1.575	0.411	6.925	0.395
IB11	1.100	0.265	1.600	0.141	6.925	1.441
IB12	1.200	0.265	1.575	0.310	7.325	1.333

Appendix 3. Dissolved Oxygen Profile Data

Table 16. IM1 and IM13

Table 17. IM2, IM3, IM4, IM5

Table 18. IM6, IM7, IM8, IM9

Table 19. IM10, IM11, IM12

Table 22. IJ9, IJ10, IJ11

Table 20. IJ1, IJ2, IJ3, IJ4

Table 21. IJ5, IJ6, IJ7, IJ8

Table 23. IR1, IR2, IR3, IR4

Table 24. IR5, IR6, IR7, IR8

Table 25. IR9, IR10, IR11, IR12

Table 26. IB1, IB3, IB4, IB6

Table 27. IB8, IB9, IB10, IB11

Table 28. IB2, IB5

Table 29. IB7, IB12

Table 16: Profile Data Lake Muskoka: IM1,IM13

IM1					IM13				
Date	TIME	DEPTHS	DO	FWTEMP	Date	TIME	DEPTHS	DO	FWTEMP
86/05/22	10:20	1	9.7	14.5	86/07/03	10:34	1	10.4	19.4
86/05/22	10:20	3	9.8	14.2	86/07/03	10:34	3	10.3	19.3
86/05/22	10:20	5	9.8	12.4	86/07/03	10:34	5	10.2	18.5
86/05/22	10:20	7	9.9	10.1	86/07/03	10:34	7	11.3	16.4
86/05/22	10:20	9	9.7	9.2	86/07/03	10:34	9	7.0	10.6
86/05/22	10:20	11	9.9	8.8	86/07/03	10:34	11	5.8	8.6
86/05/22	10:20	13	9.4	8.3	86/07/15	11:30	1	8.8	21.4
86/05/22	10:20	14	8.2	8.0	86/07/15	11:30	3	9.0	21.3
86/06/10	10:50	1	9.3	19.1	86/07/15	11:30	5	9.0	21.2
86/06/10	10:50	3	9.4	18.7	86/07/15	11:30	7	8.6	17.5
86/06/10	10:50	7	8.9	11.9	86/07/15	11:30	9	5.2	11.5
86/06/10	10:50	9	8.8	9.9	86/07/15	11:30	11	3.8	9.5
86/06/10	10:50	11	8.2	9.0	86/07/15	11:30	13	3.2	9.1
86/06/10	10:50	13	7.3	8.3	86/07/31	11:00	1	8.3	23.1
86/06/10	10:50	15	4.4	7.7	86/07/31	11:00	3	8.5	23.1
86/07/03	12:20	1	9.9	20.4	86/07/31	11:00	5	7.9	22.7
86/07/03	12:20	3	9.6	20.4	86/07/31	11:00	7	8.3	18.0
86/07/03	12:20	5	9.9	20.3	86/07/31	11:00	9	3.5	12.2
86/07/03	12:20	7	10.5	16.2	86/07/31	11:00	11	2.7	9.2
86/07/03	12:20	9	7.9	10.8	86/07/31	11:00	13	1.5	8.6
86/07/03	12:20	11	7.6	9.4	86/08/11	10:50	1	8.4	22.5
86/07/03	12:20	13	6.4	8.2	86/08/11	10:50	3	8.4	22.5
86/07/03	12:20	15	8.3	7.6	86/08/11	10:50	5	8.3	22.5
86/07/15	10:15	1	9.2	21.3	86/08/11	10:50	7	8.5	18.0
86/07/15	10:15	3	9.1	21.1	86/08/11	10:50	9	5.6	14.8
86/07/15	10:15	5	9.1	21.1	86/08/11	10:50	11	5.2	11.0
86/07/15	10:15	7	8.6	18.9	86/08/11	10:50	13	2.2	10.1
86/07/15	10:15	9	6.9	12.2	86/08/27	09:55	1	8.7	20.4
86/07/15	10:15	11	6.8	9.3	86/08/27	09:55	3	8.4	20.7
86/07/15	10:15	13	6.1	8.6	86/08/27	09:55	5	8.7	20.7
86/07/15	10:15	15	0.7	7.9	86/08/27	09:55	7	6.6	19.4
86/07/31	12:00	1	8.3	23.2	86/08/27	09:55	9	1.9	15.3
86/07/31	12:00	3	8.4	23.2	86/08/27	09:55	11	0.7	10.3
86/07/31	12:00	5	8.3	23.1	86/08/27	09:55	13	0.4	9.0
86/07/31	12:00	7	7.6	18.1	86/09/08	09:25	1	8.6	17.3
86/07/31	12:00	9	5.7	12.3	86/09/08	09:25	3	8.5	17.6
86/07/31	12:00	11	6.0	9.7	86/09/08	09:25	5	8.5	17.7
86/07/31	12:00	13	2.8	8.5	86/09/08	09:25	7	8.4	17.6
86/07/31	12:00	15	1.8	7.6	86/09/08	09:25	9	3.7	15.2
86/08/11	09:45	1	8.4	22.5	86/09/08	09:25	11	0.4	10.3
86/08/11	09:45	3	6.7	22.5	86/09/08	09:25	13	1.3	9.2
86/08/11	09:45	5	8.4	22.5	86/09/22	14:10	1	9.4	15.5
86/08/11	09:45	7	6.7	20.5	86/09/22	14:10	3	9.3	15.6
86/08/11	09:45	9	6.7	12.9	86/09/22	14:10	5	9.5	15.6
86/08/11	09:45	11	5.2	9.9	86/09/22	14:10	7	9.3	15.6
86/08/11	09:45	13	4.7	9.0	86/09/22	14:10	9	9.1	15.6
86/08/11	09:45	15	4.5	8.0	86/10/07	09:55	1	9.3	13.5
86/08/27	11:35	1	8.5	20.2	86/10/07	09:55	3	9.3	13.6
86/08/27	11:35	3	8.5	20.4	86/10/07	09:55	5	9.1	13.7
86/08/27	11:35	5	8.6	20.4	86/10/07	09:55	7	8.8	13.7
86/08/27	11:35	7	8.3	20.4	86/10/07	09:55	9	9.2	13.6
86/08/27	11:35	9	8.4	12.1	86/10/07	09:55	11	8.9	12.6
86/08/27	11:35	11	4.0	9.4	86/10/07	09:55	13	0.1	9.9
86/08/27	11:35	13	1.6	8.5	86/10/22	11:05	1	9.5	10.9
86/08/27	11:35	15	0.5	7.6	86/10/22	11:05	3	10.6	10.9

Table 16: IM1,IM13 Continued

86/09/08	08:10	1	8.9	17.3	86/10/22	11:05	5	10.4	10.8
86/09/08	08:10	3	9.6	17.4	86/10/22	11:05	7	9.9	10.7
86/09/08	08:10	5	8.6	17.4	86/10/22	11:05	9	9.0	10.6
86/09/08	08:10	7	8.7	17.4	86/10/22	11:05	11	8.9	10.5
86/09/08	08:10	9	3.2	13.9	86/10/22	11:05	13	8.2	10.2
86/09/08	08:10	11	3.1	9.6	86/11/06	09:30	1	9.9	7.9
86/09/08	08:10	13	1.4	8.3	86/11/06	09:30	3	10.0	8.0
86/09/08	08:10	15	0.1	7.3	86/11/06	09:30	5	9.9	8.0
86/09/22	09:35	1	9.2	15.6	86/11/06	09:30	7	9.9	8.0
86/09/22	09:35	3	9.4	15.6	86/11/06	09:30	9	10.0	8.0
86/09/22	09:35	5	9.2	15.6	86/11/06	09:30	11	9.9	8.0
86/09/22	09:35	7	9.7	15.5	86/11/06	09:30	13	10.1	7.7
86/09/22	09:35	9	8.4	15.1	86/11/26	09:30	1	11.8	3.0
86/09/22	09:35	11	2.2	11.8	86/11/26	09:30	3	11.7	3.1
86/09/22	09:35	13	0.4	8.9	86/11/26	09:30	5	11.9	3.1
86/09/22	09:35	15	0.1	7.8	86/11/26	09:30	7	11.7	3.1
86/10/07	10:40	1	10.0	13.3	86/11/26	09:30	9	11.7	3.1
86/10/07	10:40	3	9.2	13.4	86/11/26	09:30	11	11.6	3.1
86/10/07	10:40	5	9.4	13.5	86/11/26	09:30	13	11.6	3.3
86/10/07	10:40	7	9.3	13.5					
86/10/07	10:40	9	9.5	13.5					
86/10/07	10:40	11	6.8	13.2					
86/10/07	10:40	13	0.8	9.5					
86/10/07	10:40	15	0.1	7.9					
86/10/22	11:50	1	9.4	11.2					
86/10/22	11:50	3	9.3	11.1					
86/10/22	11:50	5	9.5	11.0					
86/10/22	11:50	7	9.2	11.0					
86/10/22	11:50	9	9.5	11.0					
86/10/22	11:50	11	8.7	10.6					
86/10/22	11:50	13	2.7	9.6					
86/10/22	11:50	15	0.1	7.7					
86/11/06	10:35	1	9.3	8.1					
86/11/06	10:35	3	9.3	8.2					
86/11/06	10:35	5	9.2	8.2					
86/11/06	10:35	7	9.4	8.2					
86/11/06	10:35	9	9.5	8.2					
86/11/06	10:35	11	9.4	8.2					
86/11/06	10:35	13	9.3	8.2					
86/11/06	10:35	14	9.2	8.2					
86/11/26	10:30	1	11.4	3.3					
86/11/26	10:30	3	11.5	3.4					
86/11/26	10:30	5	11.4	3.4					
86/11/26	10:30	7	11.7	3.4					
86/11/26	10:30	9	11.4	3.4					
86/11/26	10:30	11	11.4	3.4					
86/11/26	10:30	13	11.4	3.4					
86/11/26	10:30	15	11.4	3.9					

Table 17: Profile Data Lake Muskoka; IM2,IM3,IM4,IM5

IM2

Date	TIME	DEPTHS	DO	FWTEMP
86/07/07	11:20	9	9.4	17.1
86/07/07	11:20	11	9.5	14.5
86/07/07	11:20	13	10.8	11.0
86/07/07	11:20	15	10.2	9.3
86/07/07	11:20	17	10.4	8.3
86/08/12	09:00	11	8.1	16.1
86/08/12	09:00	13	8.6	12.8
86/08/12	09:00	15	8.6	11.3
86/08/12	09:00	17	8.9	10.2
86/09/08	10:05	7	9.2	17.2
86/09/08	10:05	9	9.0	17.2
86/09/08	10:05	11	8.8	17.2
86/09/08	10:05	13	8.6	16.2
86/10/22	10:45	7	10.4	11.3
86/10/22	10:45	9	10.3	11.3
86/10/22	10:45	11	10.2	11.3
86/10/22	10:45	13	9.9	11.3

IM3

Date	TIME	DEPTHS	DO	FWTEMP
86/07/07	12:25	9	9.1	17.2
86/07/07	12:25	11	9.7	13.9
86/08/12	09:30	3	8.3	21.6
86/08/12	09:30	5	8.2	21.6
86/08/12	09:30	7	8.3	21.6
86/08/12	09:30	9	8.2	21.6
86/09/09	13:25	9	8.8	17.4
86/09/09	13:25	11	8.8	17.3
86/09/09	13:25	13	8.8	17.3
86/09/09	13:25	15	8.4	10.5
86/10/22	09:15	11	10.1	11.2
86/10/22	09:15	13	10.1	11.2
86/10/22	09:15	15	10.3	11.1
86/10/22	09:15	17	9.8	11.0

IM4

Date	TIME	DEPTHS	DO	FWTEMP
86/07/07	13:20	5	8.6	20.0
86/07/07	13:20	7	9.1	19.3
86/07/07	13:20	9	8.6	18.1
86/07/07	13:20	11	9.0	13.8
86/08/12	07:30	5	8.6	22.0
86/08/12	07:30	7	8.9	22.0
86/08/12	07:30	9	8.9	22.0
86/08/12	07:30	11	7.3	15.6
86/09/08	13:15	7	8.5	17.4
86/09/08	13:15	9	8.5	17.3
86/09/08	13:15	11	8.5	17.1
86/09/08	13:15	13	7.8	14.7
86/10/21	11:10	7	11.6	10.4
86/10/21	11:10	9	11.2	10.2
86/10/21	11:10	11	11.1	10.0
86/10/21	11:10	13	12.0	9.9

IM5

Date	TIME	DEPTHS	DO	FWTEMP
86/07/09	10:05	32	9.8	6.3
86/07/09	10:05	38	10.9	6.2
86/07/09	10:05	42	10.7	6.1
86/07/09	10:05	46	10.6	6.1
86/08/12	08:00	31	10.1	6.8
86/08/12	08:00	35	10.1	6.5
86/08/12	08:00	37	10.2	6.4
86/08/12	08:00	43	10.0	6.4
86/10/21	10:20	34	9.7	7.1
86/10/21	10:20	38	9.4	6.9
86/10/21	10:20	42	9.5	6.8
86/10/21	10:20	46	9.6	6.7

Table 18: Profile Data Lake Muskoka: IM6,IM7,IM8,IM9

IM6

Date	TIME	DEPTHS	DO	FWTEMP
86/07/09	11:10	5	9.2	18.3
86/07/09	11:10	7	8.2	13.3
86/07/09	11:10	9	7.9	9.2
86/08/11	12:00	5	8.2	22.3
86/08/11	12:00	7	6.4	14.8
86/08/11	12:00	9	7.7	9.9
86/08/11	12:00	11	2.1	8.8
86/09/08	11:20	3	8.5	17.6
86/09/08	11:20	5	8.6	17.5
86/09/08	11:20	7	8.6	17.4
86/09/08	11:20	9	1.0	10.8
86/10/21	14:30	3	10.1	11.1
86/10/21	14:30	5	10.4	10.9
86/10/21	14:30	7	9.6	10.6

IM7

Date	TIME	DEPTHS	DO	FWTEMP
86/07/08	11:30	2	8.8	22.3
86/07/08	11:30	6	8.8	19.8
86/07/08	11:30	10	8.4	18.4
86/08/11	13:15	15	7.1	15.6
86/08/11	13:15	17	6.9	13.1
86/08/11	13:15	19	7.0	11.1
86/09/09	11:45	9	9.0	18.0
86/09/09	11:45	11	8.5	18.0
86/09/09	11:45	13	8.5	18.0
86/09/09	11:45	15	7.1	16.3
86/10/21	13:45	9	9.8	11.2
86/10/21	13:45	11	9.6	11.2
86/10/21	13:45	13	10.2	11.1
86/10/21	13:45	15	10.3	11.1

IM8

Date	TIME	DEPTHS	DO	FWTEMP
86/07/08	12:15	11	8.5	9.2
86/07/08	12:15	13	8.0	8.7
86/07/08	12:15	15	8.0	8.5
86/07/08	12:15	17	7.7	8.3
86/08/11	14:00	11	7.0	10.7
86/08/11	14:00	13	7.0	10.1
86/08/11	14:00	15	6.2	9.4
86/08/11	14:00	17	5.8	9.1
86/09/09	11:00	11	5.1	10.6
86/09/09	11:00	13	5.1	9.4
86/09/09	11:00	15	4.9	8.8
86/09/09	11:00	17	4.9	8.5
86/10/21	12:50	11	11.1	10.9
86/10/21	12:50	13	10.1	10.8
86/10/21	12:50	15	9.7	10.5
86/10/21	12:50	17	3.7	8.7

IM9

Date	TIME	DEPTHS	DO	FWTEMP
86/07/08	13:55	9	9.0	11.0
86/07/08	13:55	11	8.7	9.3
86/07/08	13:55	13	8.6	9.0
86/08/11	15:30	11	7.8	13.0
86/08/11	15:30	13	8.2	11.0
86/08/11	15:30	15	7.9	10.1
86/08/11	15:30	17	7.9	9.2
86/09/09	10:15	9	8.7	17.4
86/09/09	10:15	11	7.7	16.0
86/09/09	10:15	13	6.9	10.4
86/09/09	10:15	15	7.0	9.2
86/09/09	10:15	17	6.5	8.9
86/10/21	12:15	11	10.7	11.1
86/10/21	12:15	13	9.6	11.0
86/10/21	12:15	15	10.7	10.9
86/10/21	12:15	17	8.4	10.3

Table 19: Profile Data Lake Muskoka: IM10,IM11,IM12

IM10

Date	TIME	DEPTHS	DO	FWTEMP
86/07/09	12:15	9	8.9	16.3
86/07/09	12:15	11	9.1	12.8
86/07/09	12:15	13	9.6	10.2
86/07/09	12:15	15	10.1	9.3
86/08/11	16:00	3	8.0	21.0
86/08/11	16:00	5	8.4	21.0
86/08/11	16:00	7	8.1	20.9
86/08/11	16:00	9	8.4	20.3
86/09/09	09:15	7	8.8	17.2
86/09/09	09:15	9	8.8	17.1
86/09/09	09:15	11	8.3	15.3
86/09/09	09:15	13	8.5	11.6
86/10/21	11:45	9	10.0	11.3
86/10/21	11:45	11	10.3	11.2
86/10/21	11:45	13	10.2	11.0
86/10/21	11:45	15	10.6	10.9

IM11

Date	TIME	DEPTHS	DO	FWTEMP
86/07/09	13:00	42	10.7	6.1
86/07/09	13:00	46	10.6	
86/08/12	10:00	33	10.1	6.6
86/08/12	10:00	37	10.1	6.4
86/08/12	10:00	41	10.3	6.3
86/08/12	10:00	45	10.3	6.2
86/09/09	08:10	39	9.8	6.2
86/09/09	08:10	41	9.6	6.2
86/09/09	08:10	43	9.6	6.2
86/09/09	08:10	45	9.7	6.2
86/10/20	13:40	34	10.6	7.0
86/10/20	13:40	38	9.7	6.8
86/10/20	13:40	42	9.1	6.7
86/10/20	13:40	46	10.5	6.6

IM12

Date	TIME	DEPTHS	DO	FWTEMP
86/07/08	10:25	1	8.6	23.1
86/07/08	10:25	3	9.0	21.6
86/07/08	10:25	5	8.3	18.9
86/08/12	11:00	1	8.0	20.8
86/08/12	11:00	3	8.5	20.8
86/08/12	11:00	5	8.3	20.8
86/09/09	14:40	1	8.9	17.6
86/09/09	14:40	3	8.9	17.7
86/09/09	14:40	5	8.9	17.7
86/10/20	13:05	1	10.2	11.2
86/10/20	13:05	3	9.9	11.0
86/10/20	13:05	5	10.6	10.9

Table 20: Profile Data Lake Joseph: IJ1,IJ2,IJ3,IJ4

IJ1

Date	TIME	DEPTHS	DO	FWTEMP
86/08/14	10:30	11	10.5	17.0
86/08/14	10:30	13	11.5	12.0
86/08/14	10:30	15	11.8	9.6
86/08/14	10:30	17	11.1	8.3
86/09/15	09:30	11	9.4	15.4
86/09/15	09:30	13	10.8	10.1
86/09/15	09:30	15	10.8	8.3
86/09/15	09:30	17	10.9	8.0
86/10/14	11:50	11	10.4	12.1
86/10/14	11:50	13	10.4	12.1
86/10/14	11:50	15	10.4	12.1
86/10/14	11:50	17	9.8	11.9

IJ2

Date	TIME	DEPTHS	DO	FWTEMP
86/08/14	11:00	30	11.0	6.3
86/08/14	11:00	34	10.8	5.8
86/08/14	11:00	38	10.8	5.6
86/08/14	11:00	42	10.2	5.5
86/09/15	10:10	26	10.5	7.1
86/09/15	10:10	30	10.4	6.6
86/09/15	10:10	34	10.1	6.2
86/10/14	12:30	34	9.7	6.2
86/10/14	12:30	38	10.0	5.9
86/10/14	12:30	42	9.8	5.6
86/10/14	12:30	46	9.7	5.5

IJ3

Date	TIME	DEPTHS	DO	FWTEMP
86/08/14	12:03	9	12.3	15.2
86/08/14	12:03	11	12.9	10.9
86/08/14	12:03	13	11.5	8.2
86/08/14	12:03	15	9.7	6.7
86/09/15	11:35	9	9.3	16.4
86/09/15	11:35	11	12.5	12.1
86/09/15	11:35	13	11.4	8.6
86/09/15	11:35	15	8.9	6.9
86/10/14	13:45	9	10.6	12.1
86/10/14	13:45	11	9.8	12.1
86/10/14	13:45	13	9.7	9.6
86/10/14	13:45	15	9.3	7.3

IJ4

Date	TIME	DEPTHS	DO	FWTEMP
86/08/18	11:00	34	10.2	6.3
86/08/18	11:00	38	10.4	6.1
86/08/18	11:00	42	10.3	5.9
86/08/18	11:00	46	10.4	5.8
86/09/15	08:30	34	10.1	6.4
86/09/15	08:30	38	10.1	6.2
86/09/15	08:30	42	10.1	6.0
86/09/15	08:30	46	10.0	5.7
86/10/14	11:00	34	9.7	6.9
86/10/14	11:00	38	10.3	6.2
86/10/14	11:00	42	9.5	5.9
86/10/14	11:00	46	10.0	5.9

Table 21: Profile Data Lake Joseph: IJ5,IJ6,IJ7,IJ8

IJ5

Date	TIME	DEPTHS	DO	FWTEMP
86/07/23	13:20	22	8.6	4.8
86/07/23	13:20	26	8.8	4.6
86/07/23	13:20	30	8.6	4.5
86/07/23	13:20	34	6.5	4.4
86/07/23	13:20	37	8.7	4.3
86/08/18	12:00	31	7.2	4.8
86/08/18	12:00	33	7.0	4.6
86/08/18	12:00	35	8.3	4.5
86/08/18	12:00	37	8.0	4.4
86/09/15	12:25	31	8.0	4.1
86/09/15	12:25	33	7.8	4.1
86/09/15	12:25	35	6.4	4.1
86/09/15	12:25	37	4.5	4.1
86/10/15	12:30	31	8.3	4.1
86/10/15	12:30	33	7.6	4.1
86/10/15	12:30	35	6.5	4.0
86/10/15	12:30	37	4.3	4.0

IJ6

Date	TIME	DEPTHS	DO	FWTEMP
86/07/23	12:30	9	12.6	11.7
86/07/23	12:30	11	12.5	9.3
86/07/23	12:30	13	10.1	7.8
86/07/23	12:30	15	9.6	7.3
86/07/23	12:30	17	7.3	6.8
86/08/18	12:40	11	9.1	11.3
86/08/18	12:40	13	11.1	9.4
86/08/18	12:40	15	12.6	7.9
86/08/18	12:40	17	5.5	7.9
86/09/15	13:15	11	11.5	11.5
86/09/15	13:15	13	9.6	8.9
86/09/15	13:15	15	5.1	7.6
86/09/15	13:15	17	2.1	6.8
86/10/15	11:50	11	10.4	11.7
86/10/15	11:50	13	10.1	11.5
86/10/15	11:50	15	10.8	7.7
86/10/15	11:50	17	10.7	7.0

IJ7

Date	TIME	DEPTHS	DO	FWTEMP
86/07/22	14:02	1	8.5	24.3
86/07/22	14:02	3	8.7	23.4
86/07/22	14:02	5	10.8	18.0
86/07/22	14:02	7	10.1	12.2
86/08/14	13:00	1	8.6	23.0
86/08/14	13:00	3	8.6	22.6
86/08/14	13:00	5	10.5	19.7
86/08/14	13:00	7	1.7	13.3
86/09/11	13:10	1	8.5	17.5
86/09/11	13:10	3	8.7	17.4
86/09/11	13:10	5	8.2	17.3
86/09/11	13:10	7	1.7	15.2
86/10/15	13:30	1	9.8	10.8
86/10/15	13:30	3	9.5	10.8
86/10/15	13:30	5	10.6	10.9
86/10/15	13:30	7	9.3	10.9

IJ8

Date	TIME	DEPTHS	DO	FWTEMP
86/08/18	13:00	25	10.2	7.0
86/08/18	13:00	27	10.4	6.7
86/08/18	13:00	29	10.2	6.5
86/08/18	13:00	31	10.2	6.4
86/09/16	08:30	29	10.1	6.6
86/09/16	08:30	31	9.7	6.5
86/09/16	08:30	33	9.8	6.3
86/09/16	08:30	35	9.9	6.1
86/10/14	10:00	31	10.1	6.9
86/10/14	10:00	33	9.9	6.7
86/10/14	10:00	35	9.9	6.5
86/10/14	10:00	38	9.5	6.3

Table 22: Profile Data Lake Joseph: IJ9,IJ10,IJ11

IJ9

Date	TIME	DEPTHS	DO	FWTEMP
86/08/18	13:55	23	10.2	7.0
86/08/18	13:55	25	10.3	6.8
86/08/18	13:55	27	10.2	6.6
86/08/18	13:55	29	9.8	6.4
86/09/16	09:40	29	9.6	6.5
86/09/16	09:40	31	10.8	6.3
86/09/16	09:40	33	9.7	6.1
86/09/16	09:40	35	9.9	6.0
86/10/15	11:00	29	9.5	7.2
86/10/15	11:00	31	9.6	6.6
86/10/15	11:00	33	9.2	6.4
86/10/15	11:00	35	9.3	6.2

IJ10

Date	TIME	DEPTHS	DO	FWTEMP
86/08/14	12:51	9	9.3	21.3
86/08/14	12:51	11	9.3	14.4
86/08/14	12:51	13	10.1	10.2
86/08/14	12:51	15	9.0	9.0
86/09/16	10:40	11	9.6	16.0
86/09/16	10:40	13	9.6	16.0
86/09/16	10:40	15	9.4	9.9
86/09/16	10:40	17	9.4	8.8
86/10/15	10:20	11	10.0	11.9
86/10/15	10:20	13	10.0	11.9
86/10/15	10:20	15	9.3	9.1
86/10/15	10:20	17	9.8	8.1

IJ11

Date	TIME	DEPTHS	DO	FWTEMP
86/07/22	13:10	1	8.4	23.6
86/07/22	13:10	3	8.5	23.3
86/07/22	13:10	5	8.6	23.1
86/07/22	13:10	7	8.8	21.3
86/07/22	13:10	9	8.6	19.1
86/07/22	13:10	11	9.9	10.6
86/08/18	14:50	5	9.0	23.6
86/08/18	14:50	7	9.1	23.1
86/08/18	14:50	9	8.9	22.3
86/08/18	14:50	11	8.8	17.8
86/09/16	11:30	5	9.1	15.8
86/09/16	11:30	7	9.3	15.9
86/09/16	11:30	9	10.0	15.9
86/09/16	11:30	11	9.4	15.8
86/10/15	10:00	5	9.9	11.6
86/10/15	10:00	7	10.1	11.7
86/10/15	10:00	9	4.3	11.7
86/10/15	10:00	11	1.3	11.7

Table 23: Profile Data -Lake Rosseau : IR1,IR2,IR3,IR4

IR1

Date	TIME	DEPTHS	DO	FWTEMP
86/07/21	11:05	5	8.8	20.0
86/07/21	11:05	7	8.7	17.6
86/07/21	11:05	9	8.4	13.1
86/07/21	11:05	11	5.3	9.7
86/08/13	09:00	5	8.3	21.7
86/08/13	09:00	7	7.8	21.7
86/08/13	09:00	9	6.6	19.0
86/08/13	09:00	11	2.6	12.9
86/09/11	11:30	5	8.8	17.3
86/09/11	11:30	7	8.9	17.2
86/09/11	11:30	9	7.4	14.4
86/09/11	11:30	10	5.8	12.2
86/10/16	12:20	5	9.8	10.8
86/10/16	12:20	7	9.3	10.9
86/10/16	12:20	9	9.6	10.2
86/10/16	12:20	11	9.5	9.5

IR2

Date	TIME	DEPTHS	DO	FWTEMP
86/07/21	11:44	15	9.9	7.7
86/07/21	11:44	17	9.8	7.4
86/07/21	11:44	19	9.9	7.2
86/07/21	11:44	21	9.9	7.0
86/07/21	11:44	23	9.6	6.7
86/08/13	09:56	17	9.7	8.7
86/08/13	09:56	19	9.7	8.1
86/08/13	09:56	21	9.8	7.8
86/09/11	10:45	15	8.2	9.2
86/09/11	10:45	17	9.0	8.0
86/09/11	10:45	19	9.2	7.7
86/09/11	10:45	21	8.8	7.4
86/10/16	13:10	17	8.7	8.0
86/10/16	13:10	19	9.5	7.4
86/10/16	13:10	21	8.6	7.2
86/10/16	13:10	23	7.4	7.0

IR3

Date	TIME	DEPTHS	DO	FWTEMP
86/07/21	12:48	7	9.7	16.5
86/07/21	12:48	9	9.7	12.4
86/07/21	12:48	11	9.9	10.4
86/07/21	12:48	13	10.1	8.7
86/07/21	12:48	15	10.1	8.2
86/08/13	10:30	11	9.2	12.4
86/08/13	10:30	13	9.5	11.6
86/08/13	10:30	15	9.6	8.9
86/08/13	10:30	17	9.5	8.6
86/09/11	10:05	9	9.0	17.3
86/09/11	10:05	11	8.9	17.0
86/09/11	10:05	13	8.7	12.8
86/09/11	10:05	15	9.2	9.5
86/10/16	13:48	9	10.0	11.4
86/10/16	13:48	11	10.9	11.4
86/10/16	13:48	13	11.2	11.4
86/10/16	13:48	15	10.6	11.0

IR4

Date	TIME	DEPTHS	DO	FWTEMP
86/07/21	13:30	9	9.7	10.2
86/07/21	13:30	11	9.8	7.9
86/07/21	13:30	13	8.7	6.5
86/07/21	13:30	15	7.7	6.0
86/07/21	13:30	17	6.8	5.6
86/08/13	11:00	13	8.4	7.5
86/08/13	11:00	15	7.0	6.9
86/08/13	11:00	17	5.0	6.5
86/08/13	11:00	19	4.4	6.3
86/09/10	12:35	13	7.2	7.2
86/09/10	12:35	15	6.8	6.2
86/09/10	12:35	17	6.4	5.8
86/09/10	12:35	19	4.6	5.6
86/10/16	14:15	11	9.3	11.0
86/10/16	14:15	13	7.0	8.2
86/10/16	14:15	15	5.5	6.4
86/10/16	14:15	17	4.1	5.9

Table 24: Profile Data Lake Rosseau: IR5,IR6,IR7,IR8

IR5

Date	TIME	DEPTHS	DO	FWTEMP
86/07/21	14:24	9	8.9	17.7
86/07/21	14:24	11	9.6	12.7
86/07/21	14:24	13	10.0	9.3
86/07/21	14:24	15	10.6	8.1
86/07/21	14:24	17	10.2	7.5
86/08/13	12:30	15	9.8	9.1
86/08/13	12:30	17	9.7	8.3
86/08/13	12:30	19	9.9	7.8
86/08/13	12:30	21	9.8	7.4
86/09/10	12:00	13	8.9	11.4
86/09/10	12:00	15	9.0	9.1
86/09/10	12:00	17	9.0	8.3
86/09/10	12:00	19	9.3	7.8
86/10/20	10:00	13	10.5	10.7
86/10/20	10:00	15	10.3	10.6
86/10/20	10:00	17	8.7	8.8
86/10/20	10:00	19	8.9	7.6

IR6

Date	TIME	DEPTHS	DO	FWTEMP
86/07/22	10:42	18	9.7	7.7
86/07/22	10:42	22	9.6	7.0
86/07/22	10:42	26	9.5	6.7
86/07/22	10:42	30	9.3	6.5
86/07/22	10:42	32	9.1	6.4
86/08/14	08:32	19	9.4	7.3
86/08/14	08:32	21	9.9	7.1
86/08/14	08:32	23	9.6	6.9
86/08/14	08:32	25	9.1	6.8
86/09/10	09:40	25	8.4	6.6
86/09/10	09:40	27	8.2	6.5
86/09/10	09:40	29	8.0	6.3
86/09/10	09:40	31	7.7	6.3
86/10/16	09:45	25	7.5	7.1
86/10/16	09:45	27	7.9	6.9
86/10/16	09:45	29	7.4	6.8
86/10/16	09:45	31	7.3	6.6

IR7

Date	TIME	DEPTHS	DO	FWTEMP
86/07/10	09:25	5	9.6	22.6
86/07/10	09:25	7	9.2	20.8
86/07/10	09:25	9	9.1	19.5
86/07/10	09:25	11	10.2	10.2
86/08/13	13:00	7	8.1	21.9
86/08/13	13:00	9	8.6	18.3
86/08/13	13:00	11	9.0	12.6
86/08/13	13:00	13	9.4	10.8
86/09/10	10:30	3	8.9	17.4
86/09/10	10:30	5	8.8	17.5
86/09/10	10:30	9	8.9	17.6
86/09/10	10:30	11	8.6	14.8
86/10/20	10:40	5	10.4	10.8
86/10/20	10:40	7	10.1	10.8
86/10/20	10:40	9	10.1	10.8
86/10/20	10:40	11	11.1	10.8

IR8

Date	TIME	DEPTHS	DO	FWTEMP
86/07/10	10:30	1	8.3	23.5
86/07/10	10:30	2	9.1	23.5
86/07/10	10:30	3	8.1	23.4
86/07/10	10:30	4	7.9	22.5
86/08/13	13:30	1	8.3	21.4
86/08/13	13:30	3	8.4	21.4
86/09/10	08:30	1	9.0	16.3
86/09/10	08:30	3	8.9	16.3
86/10/20	11:20	1	10.3	9.4
86/10/20	11:20	3	10.4	9.1

Table 25: Profile Data Lake Rosseau: IR9,IR10,IR11,IR12

IR9

Date	TIME	DEPTHS	DO	FWTEMP
86/07/10	11:15	1	8.9	22.8
86/07/10	11:15	3	8.9	22.8
86/07/10	11:15	5	8.7	22.7
86/07/10	11:15	7	8.8	20.6
86/08/13	14:00	1	8.4	21.9
86/08/13	14:00	3	8.3	21.8
86/08/13	14:00	5	8.3	21.8
86/08/13	14:00	7	8.2	21.7
86/09/10	09:05	1	10.8	16.9
86/09/10	09:05	3	9.0	17.0
86/09/10	09:05	5	8.9	17.1
86/09/10	09:05	7	8.9	17.1
86/10/20	11:45	1	10.1	11.1
86/10/20	11:45	3	10.1	10.9
86/10/20	11:45	5	10.2	10.9
86/10/20	11:45	7	10.1	10.9

IR10

Date	TIME	DEPTHS	DO	FWTEMP
86/07/10	12:15	7	9.5	20.3
86/07/10	12:15	9	9.4	18.1
86/07/10	12:15	11	10.4	14.0
86/07/10	12:15	13	9.8	9.0
86/08/13	12:00	7	8.7	21.5
86/08/13	12:00	9	8.7	20.5
86/08/13	12:00	11	9.1	11.7
86/08/13	12:00	13	9.2	10.8
86/09/11	12:30	5	8.9	17.1
86/09/11	12:30	7	9.0	17.1
86/09/11	12:30	9	9.0	17.1
86/09/11	12:30	11	8.8	13.4
86/10/15	14:00	7	12.0	11.5
86/10/15	14:00	9	10.6	11.4
86/10/15	14:00	11	9.6	9.8
86/10/15	14:00	13	9.7	9.1

IR11

Date	TIME	DEPTHS	DO	FWTEMP
86/07/22	11:46	26	9.1	6.4
86/07/22	11:46	30	10.6	6.1
86/07/22	11:46	34	10.3	6.0
86/07/22	11:46	38	10.2	5.8
86/07/22	11:46	42	10.3	5.8
86/07/22	11:46	45	9.9	5.7
86/08/14	09:15	34	10.0	6.0
86/08/14	09:15	38	10.0	5.9
86/08/14	09:15	42	9.7	5.8
86/08/14	09:15	46	10.2	5.7
86/09/10	08:10	22	9.2	7.1
86/09/10	08:10	26	9.5	6.7
86/09/10	08:10	30	9.6	6.3
86/09/10	08:10	34	9.5	6.1
86/10/16	10:20	26	9.3	6.8
86/10/16	10:20	30	10.4	6.4
86/10/16	10:20	34	9.3	6.2
86/10/16	10:20	38	9.6	5.9

IR12

Date	TIME	DEPTHS	DO	FWTEMP
86/07/23	10:30	30	10.5	6.0
86/07/23	10:30	34	10.4	5.7
86/07/23	10:30	38	10.3	5.6
86/07/23	10:30	42	10.4	5.4
86/08/13	08:46	34	10.2	6.4
86/08/13	08:46	38	10.6	6.0
86/08/13	08:46	42	10.5	5.6
86/08/13	08:46	46	10.4	5.3
86/09/11	09:00	34	9.8	6.1
86/09/11	09:00	38	10.2	5.8
86/09/11	09:00	42	10.1	5.4
86/09/11	09:00	46	10.1	5.1
86/10/16	11:20	34	9.5	6.3
86/10/16	11:20	38	9.9	6.0
86/10/16	11:20	42	10.6	5.9
86/10/16	11:20	46	11.3	5.5

Table 26: Profile Data Lake of Bays: IB1,IB3,IB4,IB6

IB1

Date	TIME	DEPTHS	DO	FWTEMP
86/06/26	09:50	1	8.8	19.5
86/06/26	09:50	3	9.1	19.4
86/06/26	09:50	5	9.0	18.8
86/06/26	09:50	7	7.7	15.8
86/06/26	09:50	9	6.5	12.2
86/06/26	09:50	11	5.6	10.9
86/06/26	09:50	13	5.4	10.4
86/07/30	15:30	3	8.4	23.6
86/07/30	15:30	5	8.6	23.6
86/07/30	15:30	7	8.4	20.2
86/07/30	15:30	9	6.0	14.2
86/09/18	08:40	7	9.8	12.7
86/09/18	08:40	9	9.4	12.6
86/09/18	08:40	11	9.0	12.5
86/09/18	08:40	13	0.1	8.7
86/10/23	08:30	5	11.1	10.5
86/10/23	08:30	7	10.4	10.5
86/10/23	08:30	9	10.5	10.4
86/10/23	08:30	11	9.9	10.3

IB3

Date	TIME	DEPTHS	DO	FWTEMP
86/06/26	12:15	11	10.4	6.8
86/06/26	12:15	13	9.5	6.1
86/06/26	12:15	15	9.1	5.7
86/06/26	12:15	17	8.9	5.2
86/06/26	12:15	19	8.3	4.9
86/07/30	14:00	11	11.8	7.9
86/07/30	14:00	13	9.0	7.0
86/07/30	14:00	15	8.9	6.7
86/07/30	14:00	17	8.2	6.0
86/09/17	07:20	11	11.9	8.9
86/09/17	07:20	13	10.5	7.1
86/09/17	07:20	15	9.3	6.1
86/09/17	07:20	17	7.3	5.8
86/10/22	14:10	9	10.3	10.5
86/10/22	14:10	11	10.9	9.6
86/10/22	14:10	13	9.1	6.7
86/10/22	14:10	15	8.4	6.0

IB4

Date	TIME	DEPTHS	DO	FWTEMP
86/06/26	13:27	1	9.2	18.7
86/06/26	13:27	5	9.2	18.6
86/06/26	13:27	7	9.5	18.6
86/06/26	13:27	9	9.4	17.5
86/06/26	13:27	11	10.1	12.2
86/08/20	10:00	5	9.2	21.7
86/08/20	10:00	7	8.8	21.4
86/08/20	10:00	9	8.1	19.1
86/08/20	10:00	11	7.9	13.9
86/09/18	12:30	5	9.2	15.4
86/09/18	12:30	7	9.0	15.4
86/09/18	12:30	9	8.6	15.2
86/09/18	12:30	11	8.6	14.8
86/10/27	13:45	5	10.1	10.4
86/10/27	13:45	7	10.7	10.4
86/10/27	13:45	9	10.2	10.4
86/10/27	13:45	11	10.1	10.3

IB6

Date	TIME	DEPTHS	DO	FWTEMP
86/09/18	11:45	15	9.0	6.7
86/09/18	11:45	17	8.3	5.9
86/09/18	11:45	19	8.1	5.6
86/09/18	11:45	21	7.7	5.4
86/10/27	12:30	15	8.3	6.9
86/10/27	12:30	17	7.7	6.1
86/10/27	12:30	19	7.8	5.6
86/10/27	12:30	21	6.3	5.4

Table 27: Profile Data Lake of Bays: IB8,IB9,IB10,IB11

IB8

Date	TIME	DEPTHS	DO	FWTEMP
86/08/20	13:00	19	9.2	5.6
86/08/20	13:00	21	9.2	5.4
86/08/20	13:00	23	9.0	5.2
86/08/20	13:00	25	8.9	5.1
86/09/17	13:15	23	8.6	5.7
86/09/17	13:15	25	9.2	5.5
86/09/17	13:15	27	8.8	5.4
86/10/23	11:55	19	8.5	4.9
86/10/23	11:55	21	8.5	4.8
86/10/23	11:55	23	8.3	4.7

IB9

Date	TIME	DEPTHS	DO	FWTEMP
86/08/20	10:46	39	9.9	5.6
86/08/20	10:46	41	9.9	5.5
86/08/20	10:46	43	9.6	5.4
86/08/20	10:46	45	9.8	5.3
86/09/17	12:20	39	9.5	5.7
86/09/17	12:20	41	9.3	5.6
86/09/17	12:20	43	9.3	5.5
86/09/17	12:20	45	9.2	5.5
86/10/27	09:45	34	9.3	5.6
86/10/27	09:45	38	9.7	5.3
86/10/27	09:45	42	8.9	5.2
86/10/27	09:45	46	8.7	5.2

IB10

Date	TIME	DEPTHS	DO	FWTEMP
86/08/19	12:07	29	10.7	6.8
86/08/19	12:07	31	10.4	6.4
86/08/19	12:07	44	10.2	6.0
86/08/19	12:07	46	10.4	6.0
86/09/17	09:30	39	9.8	6.5
86/09/17	09:30	41	9.7	6.4
86/09/17	09:30	43	10.7	6.3
86/09/17	09:30	45	10.9	6.2
86/10/27	11:45	34	9.5	6.4
86/10/27	11:45	38	9.8	6.3
86/10/27	11:45	42	10.3	6.2
86/10/27	11:45	46	10.1	6.1

IB11

Date	TIME	DEPTHS	DO	FWTEMP
86/08/20	14:08	15	9.4	9.3
86/08/20	14:08	17	10.0	8.3
86/08/20	14:08	19	9.4	7.7
86/08/20	14:08	21	9.8	7.5
86/09/17	11:40	9	9.2	14.9
86/09/17	11:40	11	9.2	14.9
86/09/17	11:40	13	9.2	14.6
86/09/17	11:40	15	9.2	10.0
86/10/23	10:45	15	10.1	10.1
86/10/23	10:45	17	9.6	9.3
86/10/23	10:45	19	9.2	8.4
86/10/23	10:45	21	9.1	7.9

Table 28: Profile Data Lakes of Bays: IB2,IB5

IB2

Date	TIME	DEPTHS	DO	FWTEMP
86/06/26	11:05	21	9.5	5.5
86/06/26	11:05	23	10.4	5.3
86/06/26	11:05	25	10.4	5.2
86/06/26	11:05	27	10.1	5.1
86/06/26	11:05	29	9.9	4.9
86/07/02	10:30	1	9.5	
86/07/02	10:30	3	9.3	
86/07/02	10:30	5	9.5	
86/07/02	10:30	7	11.3	
86/07/02	10:30	9	11.5	
86/07/02	10:30	11	10.6	
86/07/02	10:30	13	11.1	
86/07/02	10:30	15	10.3	
86/07/02	10:30	17	10.6	
86/07/02	10:30	19	10.6	
86/07/02	10:30	21	10.7	
86/07/02	10:30	23	10.6	
86/07/30	14:30	1	9.9	23.1
86/07/30	14:30	3	9.1	23.0
86/07/30	14:30	5	8.9	22.7
86/07/30	14:30	7	9.3	19.2
86/07/30	14:30	9	10.1	14.0
86/07/30	14:30	11	11.3	9.4
86/07/30	14:30	13	10.6	8.0
86/07/30	14:30	15	10.3	7.1
86/07/30	14:30	17	10.3	6.5
86/07/30	14:30	19	11.7	6.2
86/07/30	14:30	21	10.1	6.0
86/07/30	14:30	23	10.5	5.8
86/07/30	14:30	25	9.9	5.6
86/08/19	14:09	1	8.4	23.4
86/08/19	14:09	3	8.7	23.0
86/08/19	14:09	5	6.9	22.9
86/08/19	14:09	7	8.7	20.8
86/08/19	14:09	11	11.2	9.3
86/08/19	14:09	13	10.7	7.3
86/08/19	14:09	15	10.2	6.7
86/08/19	14:09	17	9.9	6.3
86/08/19	14:09	19	9.7	5.9
86/08/19	14:09	21	9.8	5.7
86/08/19	14:09	23	9.5	5.5
86/09/17	08:05	1	9.6	14.0
86/09/17	08:05	3	9.4	18.1
86/09/17	08:05	5	9.7	14.3
86/09/17	08:05	7	9.6	14.4
86/09/17	08:05	9	9.3	14.5
86/09/17	08:05	11	10.2	10.1
86/09/17	08:05	13	9.9	8.4
86/09/17	08:05	15	10.0	7.3
86/09/17	08:05	17	9.4	6.9
86/09/17	08:05	19	9.8	6.3
86/09/17	08:05	21	8.9	5.9
86/09/17	08:05	23	8.7	5.7
86/10/27	09:00	1	11.2	10.0
86/10/27	09:00	3	10.7	10.1
86/10/27	09:00	5	10.5	10.1
86/10/27	09:00	7	10.8	10.1
86/10/27	09:00	9	11.7	10.1
86/10/27	09:00	11	10.2	10.1
86/10/27	09:00	13	11.0	9.8
86/10/27	09:00	15	9.7	6.7
86/10/27	09:00	17	8.6	5.9
86/10/27	09:00	19	9	5.6
86/10/27	09:00	21		5.3
86/10/27	09:00	23		5.1

IB5

Date	TIME	DEPTHS	DO	FWTEMP
86/07/01	08:23	1	9.6	18.9
86/07/01	08:23	3	10.7	18.9
86/07/01	08:23	5	9.6	18.8
86/07/01	08:23	7	9.4	18.4
86/07/01	08:23	9	10.5	15.0
86/07/01	08:23	11	9.8	12.1
86/07/01	08:23	13	10.2	9.4
86/07/01	08:23	15	11.0	8.4
86/07/01	08:23	17	10.0	8.1
86/07/01	08:23	19	10.8	7.8
86/07/01	08:23	21	11.6	7.4
86/08/19	10:10	1	8.6	22.5
86/08/19	10:10	3	8.6	22.5
86/08/19	10:10	5	9.0	22.5
86/08/19	10:10	7	8.8	21.6
86/08/19	10:10	9	8.9	18.3
86/08/19	10:10	11	8.9	14.7
86/08/19	10:10	13	9.2	11.9
86/08/19	10:10	15	9.9	9.8
86/08/19	10:10	17	9.7	8.7
86/08/19	10:10	19	9.8	7.9
86/08/19	10:10	21	9.7	7.6
86/08/19	10:10	23	9.4	7.4
86/09/18	10:50	1	9.9	14.9
86/09/18	10:50	3	9.3	15.0
86/09/18	10:50	5	9.4	15.0
86/09/18	10:50	7	9.4	15.0
86/09/18	10:50	9	9.4	15.0
86/09/18	10:50	11	9.3	15.0
86/09/18	10:50	13	8.7	13.3
86/09/18	10:50	15	9.0	9.9
86/09/18	10:50	17	9.6	8.5
86/09/18	10:50	19	9.6	8.0
86/09/18	10:50	21	9.2	7.8
86/09/18	10:50	23	9.2	7.6
86/10/23	13:30	1	10.0	10.6
86/10/23	13:30	3	10.3	10.7
86/10/23	13:30	5	10.8	10.7
86/10/23	13:30	7	10.1	10.7
86/10/23	13:30	9	10.1	10.6
86/10/23	13:30	11	10.1	10.6
86/10/23	13:30	13	10.3	10.6
86/10/23	13:30	15	10.4	10.6
86/10/23	13:30	17	11.0	10.6
86/10/23	13:30	19	10.5	10.5
86/10/23	13:30	21	9.7	10.0
86/10/23	13:30	23	8.4	7.9

Table 29: Profile Data Lake of Bays: IB7,IB12

IB7					IB12				
Date	TIME	DEPTHS	DO	FWTEMP	Date	TIME	DEPTHS	DO	FWTEMP
86/07/01	14:10	1	9.1	20.2	86/07/02	10:55	1	12.3	18.9
86/07/01	14:10	3	9.2	20.0	86/07/02	10:55	3	10.3	18.6
86/07/01	14:10	5	9.3	19.8	86/07/02	10:55	5	10.6	18.5
86/07/01	14:10	6	9.2	18.0	86/07/02	10:55	7	9.9	17.6
86/07/01	14:10	7	9.9	17.1	86/07/02	10:55	9	10.3	14.6
86/07/01	14:10	9	10.1	15.6	86/07/02	10:55	11	10.3	11.8
86/07/01	14:10	11	10.5	11.9	86/07/02	10:55	13	10.6	10.3
86/07/01	14:10	13	11.1	8.8	86/07/02	10:55	15	10.6	9.1
86/07/01	14:10	15	10.2	7.6	86/07/02	10:55	19	10.4	8.0
86/07/01	14:10	17	10.6	7.0	86/07/02	10:55	21	10.9	7.4
86/07/01	14:10	19	10.6	6.6	86/07/02	10:55	23	11.4	7.0
86/07/01	14:10	21	10.4	6.3	86/08/20	14:55	1	8.8	24.1
86/08/20	11:52	1	8.6	23.3	86/08/20	14:55	3	8.6	23.2
86/08/20	11:52	3	8.7	22.5	86/08/20	14:55	5	8.8	22.7
86/08/20	11:52	5	9.1	22.0	86/08/20	14:55	7	9.2	22.4
86/08/20	11:52	7	8.8	21.8	86/08/20	14:55	9	8.7	21.3
86/08/20	11:52	9	8.3	18.4	86/08/20	14:55	11	9.4	14.2
86/08/20	11:52	11	8.7	14.3	86/08/20	14:55	13	9.8	11.0
86/08/20	11:52	13	9.0	10.9	86/08/20	14:55	15	9.8	9.1
86/08/20	11:52	15	9.4	8.9	86/08/20	14:55	17	9.7	8.5
86/08/20	11:52	17	9.6	7.9	86/08/20	14:55	19	9.9	8.1
86/08/20	11:52	19	10.1	7.2	86/09/17	10:40	1	9.3	14.1
86/08/20	11:52	21	9.6	6.7	86/09/17	10:40	3	10.0	14.1
86/08/20	11:52	23	9.5	6.4	86/09/17	10:40	5	9.3	14.3
86/09/18	09:40	1	10.0	15.0	86/09/17	10:40	7	9.4	14.4
86/09/18	09:40	3	9.2	14.9	86/09/17	10:40	9	9.3	14.3
86/09/18	09:40	5	9.4	14.9	86/09/17	10:40	11	9.3	14.4
86/09/18	09:40	7	9.2	14.9	86/09/17	10:40	13	9.0	14.5
86/09/18	09:40	9	9.2	14.8	86/09/17	10:40	15	9.9	9.8
86/09/18	09:40	11	9.3	14.7	86/09/17	10:40	17	9.6	8.0
86/09/18	09:40	13	9.3	14.2	86/09/17	10:40	19	9.7	7.8
86/09/18	09:40	15	9.0	9.3	86/09/17	10:40	21	9.5	7.2
86/09/18	09:40	17	9.1	8.8	86/09/17	10:40	23	9.4	7.6
86/09/18	09:40	19	9.5	7.7	86/10/23	10:00	1	11.1	10.5
86/09/18	09:40	21	9.4	7.2	86/10/23	10:00	3	10.8	10.5
86/09/18	09:40	23	9.3	6.9	86/10/23	10:00	5	11.2	10.6
86/10/23	12:15	1	10.9	10.4	86/10/23	10:00	7	9.9	10.5
86/10/23	12:15	3	10.9	10.5	86/10/23	10:00	9	10.2	10.5
86/10/23	12:15	5	10.4	10.6	86/10/23	10:00	11	11.9	10.3
86/10/23	12:15	7	10.7	10.6	86/10/23	10:00	13	9.5	10.1
86/10/23	12:15	9	10.2	10.6	86/10/23	10:00	15	9.5	9.3
86/10/23	12:15	11	11.0	10.6	86/10/23	10:00	17	10.2	9.1
86/10/23	12:15	13	9.8	10.2	86/10/23	10:00	19	9.2	8.5
86/10/23	12:15	15	10.1	9.7	86/10/23	10:00	21	9.8	8.1
86/10/23	12:15	17	9.2	7.6					
86/10/23	12:15	19	9.2	6.7					
86/10/23	12:15	21	10.4	6.5					
86/10/23	12:15	23	10.1	6.2					

Appendix 4. 1987 Sampling Sites

Figure 5. Lake Muskoka
Figure 6. Lake Joseph
Figure 7. Lake Rosseau
Figure 8. Lake of Bays

Figure 5: Lake Muskoka – 1987 Sampling Sites

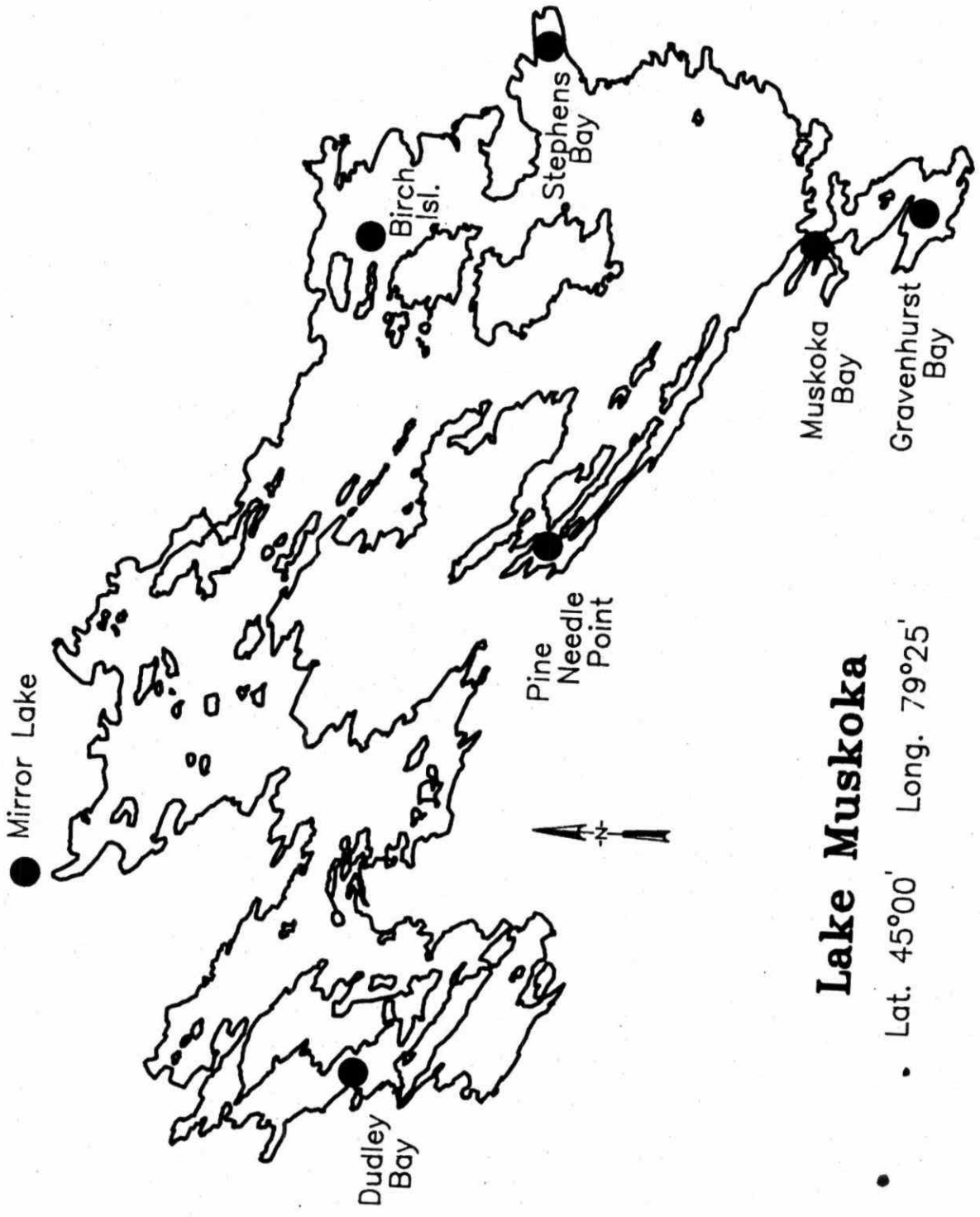


Figure 6: Lake Joseph – 1987 Sampling Sites

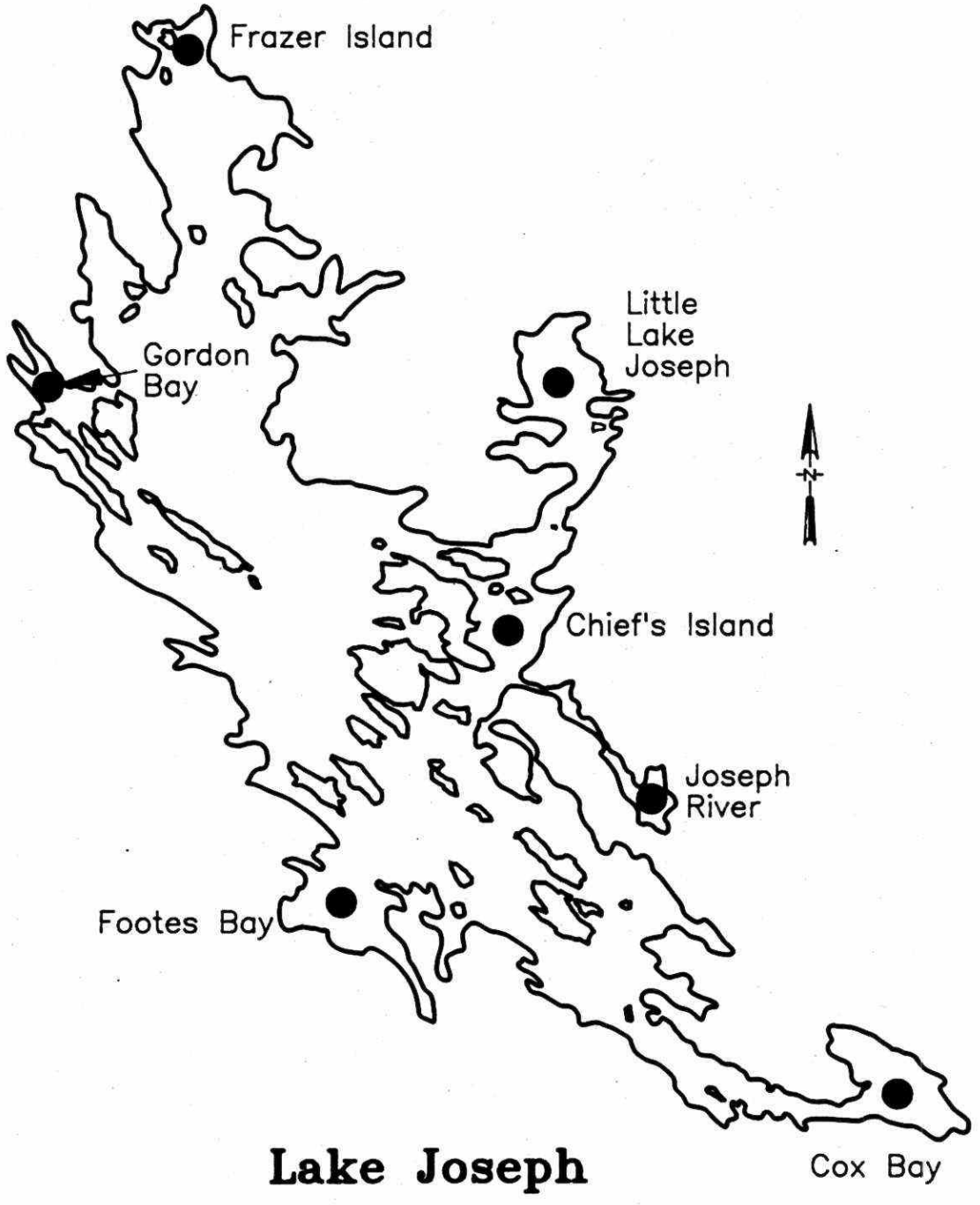
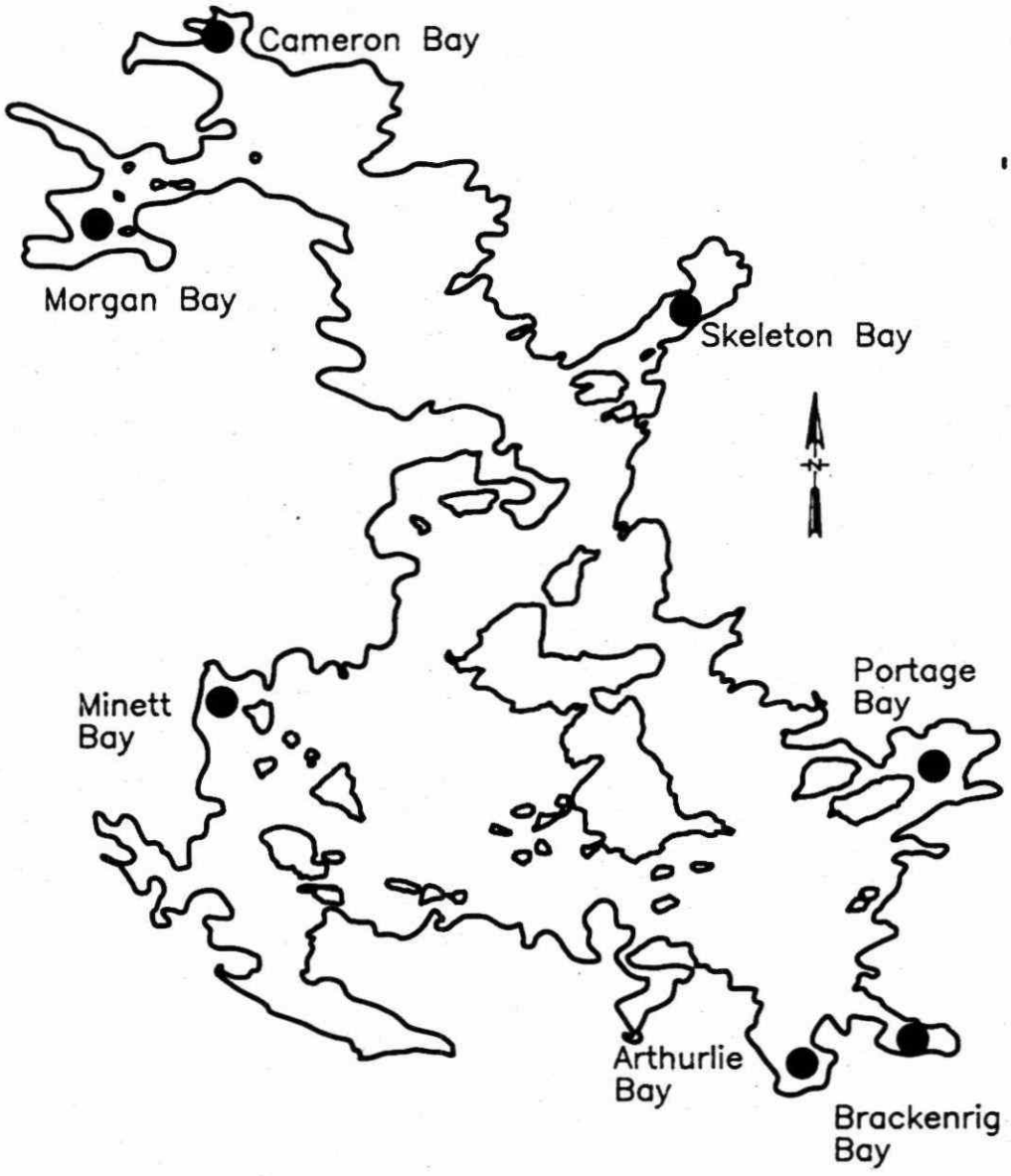


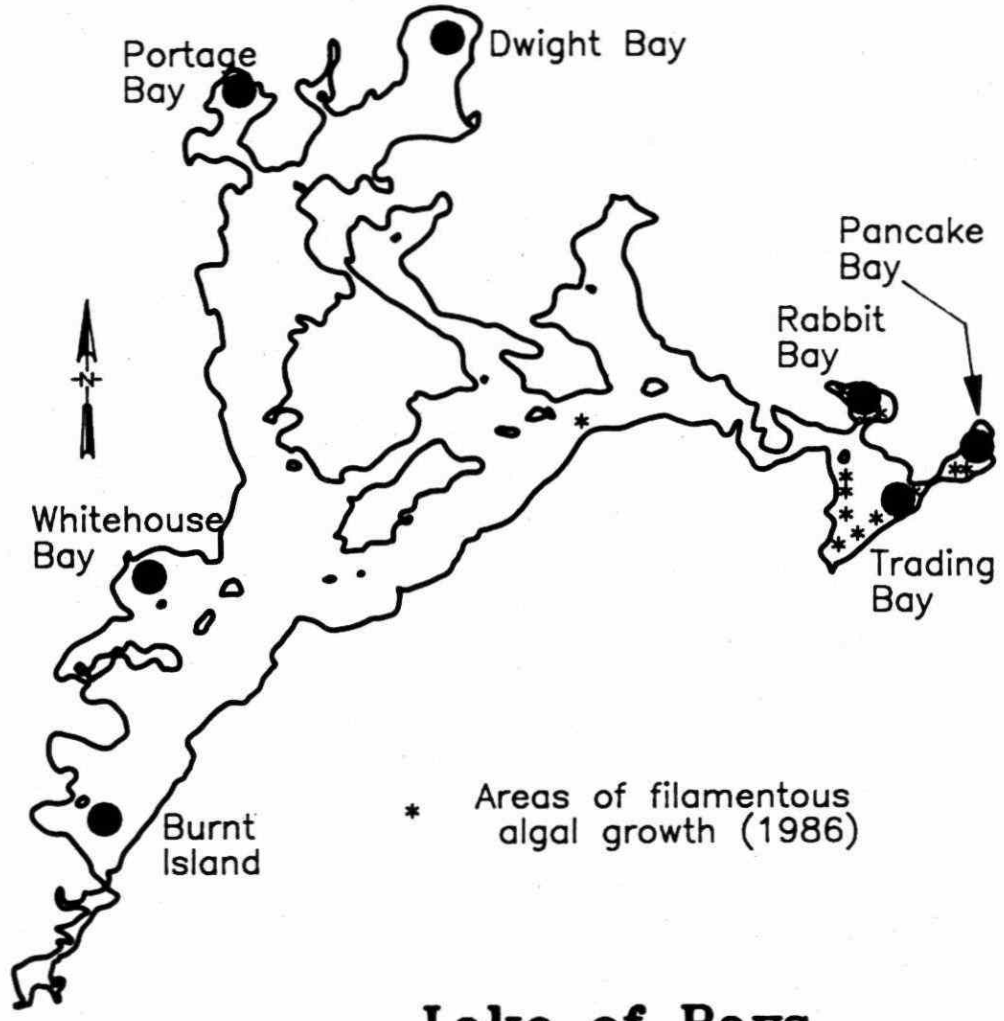
Figure 7: Lake Rosseau – 1987 Sampling Sites



Lake Rosseau

Lat. 45°10' Long. 79°35'

Figure 8: Lake of Bays – 1987 Sampling Sites



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progress report / Reid, R. A.
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